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CATECHISM
of

ORCHESTRATION

BY

Dr. RIEMANN.

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CATECHISM

OF

ORCHESTRATION

(INTRODUCTION TO INSTRUMENTATION)

BY

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To

Josef Jiránek.

INTRODUCTION.

The "Catechism of Musical Instruments," while dealing primarily with the compass, the technical possibilities, and the aesthetic effects of the single instruments, concerns itself also with the more important and usual combinations of instruments into special contrasting groups (strings, wood wind, brass), and makes occasional references to the rôle these groups as well as the single instruments play in the Orchestra and the *Ensemble.* It is thus the subtitle "Guide to Instrumentation" is justified. If, therefore, in the present little volume I give a special introduction to Instrumentation, a few explanatory remarks may be required.

In the first instance, then, it is easy to see that the fundamental difference of arrangement, the diversity in the starting point and in the total treatment of the material, makes this book a kind of practical application and proof of the former. There the single instruments, each in its turn, occupy the main interest, and fragments of compositions are inserted merely for the purpose of illustrating what has been said about them. Here we deal, from beginning to end, with musical ideas conceived beforehand, which are to be assigned to instruments. No doubt, since the revolution in instrumentation which was inaugurated by K. M. von Weber, and which gives prominent consideration to the individual quality of the instruments, it cannot any longer be considered as the normal procedure that the first invention of a whole piece of music should be, so to speak, neutral as to its tone colour, mere abstract music, and that the division of the rôles amongst the various instruments should be made afterwards. It is a just demand that a true musician should conceive, whatever he conceives, in its full sensible tone effect. But notwithstanding

that, even to-day the tone colour is a kind of garb, or as the word implies, of colouring. Tone colour does for the musical work of art to some extent what colour does for the picture. A mere black and white drawing represents the substance; the colour gives it its full, living truth. Even that painter who attaches the utmost importance to colouring, will, as a rule, sketch his ideas without colour, although the intended colouring may be vividly before his mind. Similarly a musical work of art may be represented in such a form without the full colouring, and it is just this colouring that the theory of Instrumentation concerns itself with.

Although it is quite certain that to the perfect artist instrumentation, just like the writing down of the melodic and harmonic development, is nothing else than the fixing of what the imagination vividly conceives, it would be wrong to assume the same for the beginner. The latter must first master the difficult task of understanding himself, of getting a firm hold of the creations of his imagination and committing them to notation. The mere technical part of these processes is not inborn in anybody, but must be learnt. The more talented will get over this more quickly than the less talented, but even the most gifted will be saved from circuitous roads by systematic guidance.

The method adopted in this book is not quite free from objections in as much as not sketches of works originally invented for orchestra, but Piano compositions are taken as the material to be arranged for orchestra. But something similar had to be done in any case. If the author, instead of a movement from a Piano Sonata by Mozart or Haydn had taken a sketch of a Symphony movement of his own, the pupil using this Introduction would still be confronted by a conception originating not from himself, but from someone else. Even then he would find himself compelled to make the given noted material vivid to his own imagination so as to perceive in it a certain colouring that could be expressed by intrumentation. It would be a delusion to expect that he should hit upon the same colouring for the idea I proposed to him, as that in which the idea had presented itself to me first. It is different when we look upon an existing Piano composition that is suitable for orchestration, as if it were a Piano arrangement of a work conceived originally for orchestra.

In this case the imagination of the student is fully free, and it is not impossible that it may take a different course from the one outlined by me. Still the reasons given for the choice of my way of instrumentation will not be useless. Now the student will find that his imagination had gone astray; now he will convince himself that he has found a better way, and from this he will derive great satisfaction and get confidence in his own artistic power. Nothing would be more wrong for the teacher in such a case than a narrowminded insistence on his own opinion — if the pupil himself finds something better, so much the better.

In many respects the Introduction to Instrumentation will be found a reversal of the mental processes and the manipulations required for playing from score, so that, besides the Catechism of Musical Instruments, the Introduction to Playing from Score also stands in close relation to the present work. We can only be glad to find that all the subjects that are required for a universal technical training, and that must be studied in separate courses, point one to the other and overlap in many ways. For are they not intended finally to combine in one inseparable whole!

Chapter I.

THE STRING ORCHESTRA.

The modern orchestra represents a combination of a fairly large number of single instruments. Most of these cover a considerable portion of the tone compass made use of in musical practice. Hence in the same region of tone quite a number of instruments may be employed. Middle *c*, for instance, is available on all instruments with the exception of the very lowest contrabass instruments, the piccolo, and the drums. The instruments, therefore, are not divided in such a way, that for certain regions of tone certain instruments should be used, but rather, at all times and in all positions, there is a choice between several of them. We may, however, divide the twelve or more instruments having different names into three groups, each of which covers fully or approximately the whole compass of tone, namely:

I. String Instruments,
II. Wood Wind Instruments,
III. Brass Instruments.

The Percussion Instruments (kettle drums, bass and side drums, cymbals, triangles etc.) form a fourth, subordinate, group, which is usually treated as an appendix of the third (brass). The compass and quality of the various instruments within these groups is dealt with in our Catechism of Musical Instruments. Here we have only to deal with the question how these three groups, of which each, as remarked, covers the whole region of tone approximately (the brass wants only the very highest tones — above c^3) are combined to common working, and how their rôles are differentiated in particular.

First of all we may state, without reserve, that in the modern orchestra, which joins all these groups together into one unit, *the string instruments form the groundwork.*

This statement must he upheld, even though the military bands so much in favour now-a-days, prove that a complete exclusion of strings is possible ("Harmony music"). Indeed, such an exclusion of strings is more usual at present than a complete exclusion of wind instruments (string orchestra). Viewed as artistic music, an orchestra wanting the strings is merely a makeshift incapable of producing many of the most exquisite effects. As regards the compass, indeed, some wood wind instruments (especially the clarinet) come pretty close to the string instruments, nor does the volubility of the wood wind instruments generally fall much short of that of the string instruments. But the fact alone that all the wind instruments are made to sound by the human breath points clearly to a limit in their efficiency, which limit does not exist in the string instruments. There may be another reason for the priority of place of the strings, namely the remarkably greater similitude of the sounds of wind instruments to the sounds of the human singing voice. This seems a paradox, as undoubtedly the singing voice is the instrument of all instruments, and an approximation to the character of its ideal sound ought to mean, and does really mean, a great advantage. But the sounds of the various wind instruments, and even the various registers and regions of pitch of the same instrument, represent single types of human-like voices so peculiarly individualised that they appear suited, indeed, when anything is to stand out effectively and individually, but not when a general tone or background is to be provided. The string instruments, which on account of their strong accompanying noises are farther removed from the ideal human voice, have been proved peculiarly suitable for the latter purpose in the practice of the last three centuries. By custom, but not without good reason, they are entrusted with the task of spinning on the main threads of the musical web, and they rarely are fully silent, even when some wood wind instrument is to become prominent. No doubt, the heightened modern art of instrumentation has brought about many deviations from this principle. Still no amount of reasoning can do away with the fundamental fact that in an orchestra made up by string and wind instruments the strings form the ground from which all special effects stand out. At all events the beginner in the art of instrumentation will do

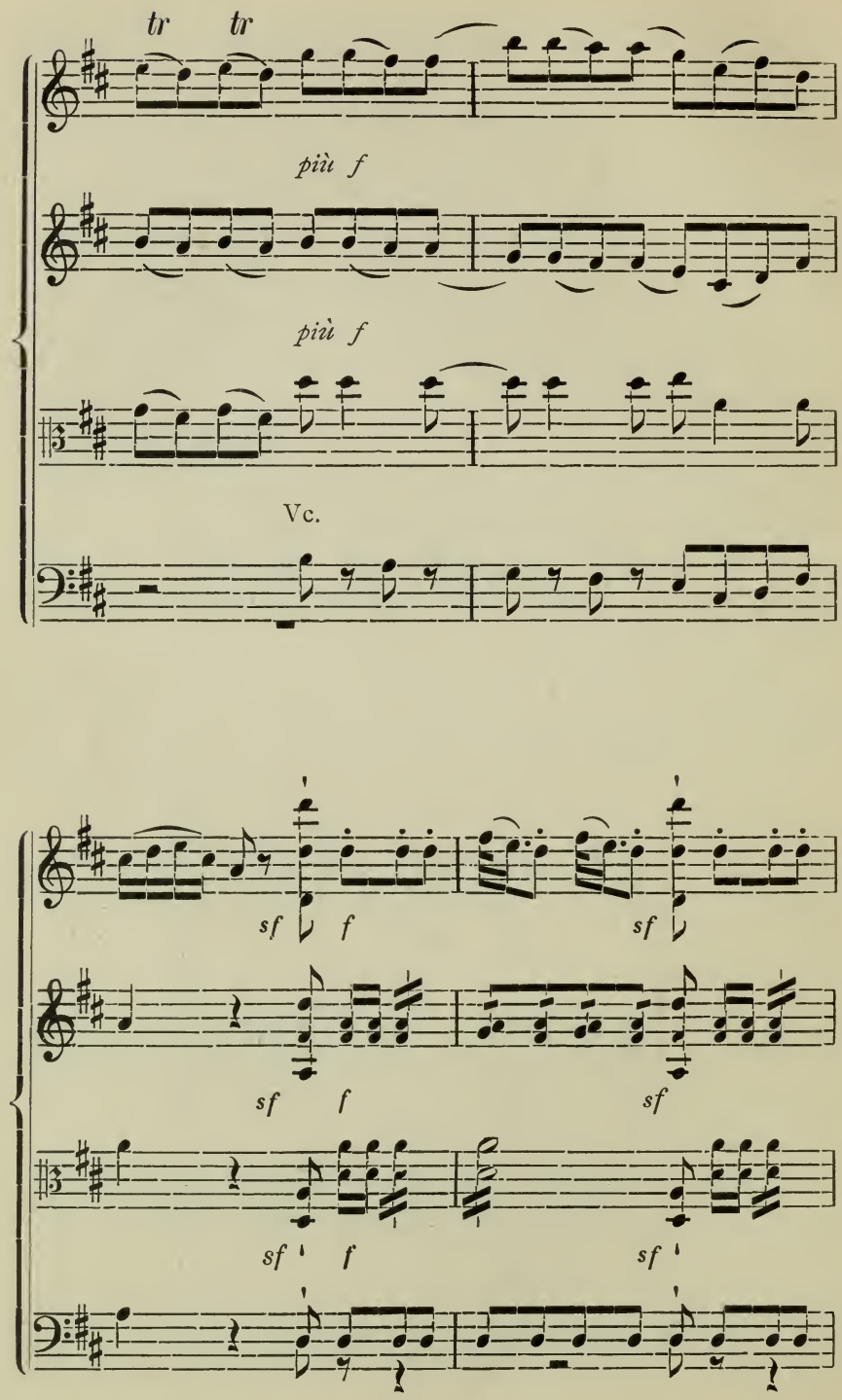
well always to think first of the strings and to turn to the wind instruments only when there is need of special expression.

To get a good grasp of this principle, the student of instrumentation should first write a number of exercises for string orchestra alone, with the exclusion of all wind instruments. He will thus become familiar with the rich means of expression to be found in this instrumental body. In these exercises he should at first abstain from all further subdivisions of the parts, that is to say, he should take the four parts: First violin, second violin, viola, and basses (cello and double bass in octaves) as the four units that alone are at his command. He may, however, take the liberty of omitting the double bass at times, while the cello remains active. He may also, in case of need, make use of occasional double stoppings in the violins or even in the viola for the marking of stronger accents or for greater harmonic fulness. During the early period of our symphony, in the 18th century, writers confined themselves for a long time to such four-part treatment, and even Haydn wrote many such four-part symphonies. As substratum for a first exercise of this kind we shall take the first movement of Haydn's Piano Sonata in D major (No. 26 of my edition), which might well have stood at the opening of such a simple Symphony.

Our experience in playing from score, will now stand us in good stead, since our object is to see in the Piano notation an arrangement, suitable for the Piano, of ideas which we are to reproduce more fully with the richer means of an orchestra though confined to string instruments. Thus, for instance, at once the opening chord with the full left hand and the first tone of the melody at the distance of two octaves is evidently a piano arrangement of a strong orchestral accent, for which the right hand would be more strongly engaged (like the left hand), were it not that it has to execute the important appogiatura and for that reason is relieved. Also the reduced repetition in the second bar is evidently to be accounted for by reasons of Piano technique. The accent is meant in the same way as in the beginning, but in order to save the left hand a difficult change of position the chord is given in the higher octave and with only three instead of four notes. We shall, therefore, at least give the second

violin a D major chord drawn accross the strings and ending on d^2, which is to get its foundation in the basses and to be supplemented by the viola. But then we observe that the appogiatura $c\sharp d$ in the first violins will scarcely have any effect, as it is effaced by the chord of the second violin. We, therefore, prefer to give also to the first violin such a chord. We shall resist, for the present, the temptation of completing the three-part writing of the first few bars, and rather take the passage to be intended as written. Only in bars 3—4 we join the celli in the lower octave to the second violins, without, however, letting them take part in the quaver movement. At the re-inforced repetition, bars 5—8 we shall, of course, — in accordance with our practice of playing from score, only reversing the process—not reproduce the semiquaver movement in unison—which would mean a weakening rather than a strengthening—but rather by a double-stopping *tremolo* of second violin and viola, and with support by the basses. The beginning of our score would then look thus:

1. *Allegro con brio.*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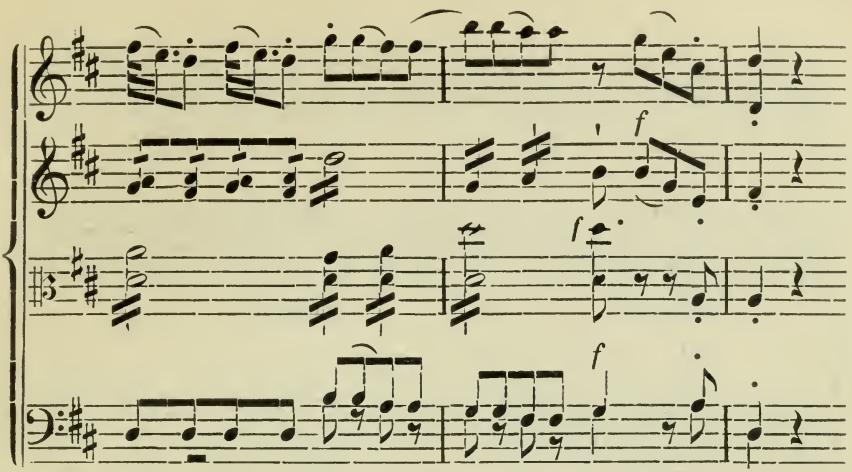
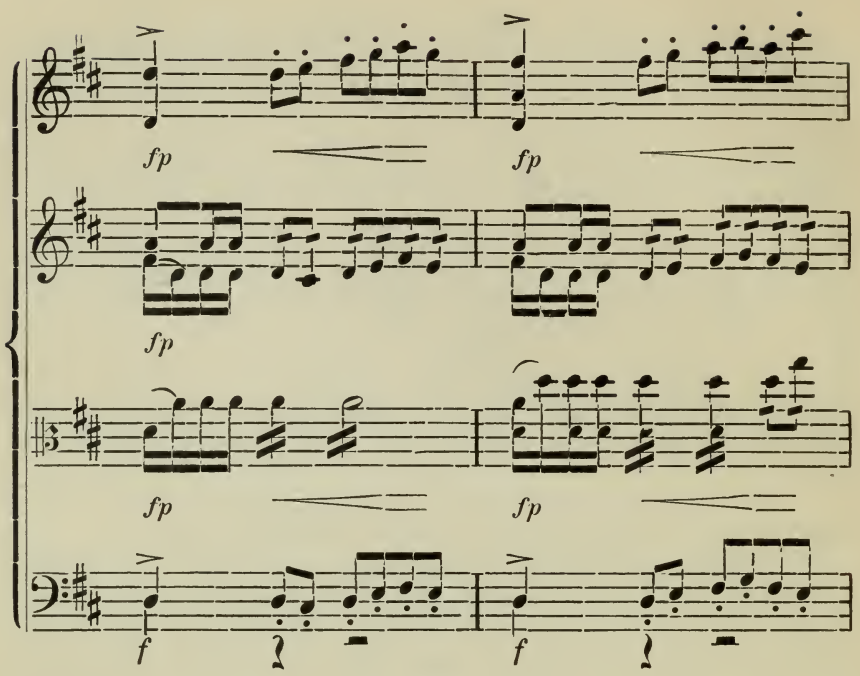


Also the second period, which leads to the second theme (with half-cadence in the principal key) is to be treated quite similarly. The *sforzati* at the beginnings of the bars are to be played by the *Tutti*, at first without chords, but afterwards, as the melody rises higher, with chords. The semiquaver movement is to be preserved by a *tremolo* in a middle part. The *tremolo* on *d''* can be rendered *legato* by playing on two chords. The upper part, then, gets quavers, and, later on, even crotchets played with a sharp *staccato*. The *unisono* of the last two bars will, of course, by adding the celli and double basses be made fourfold, receiving treble, instead of single, octave doubling.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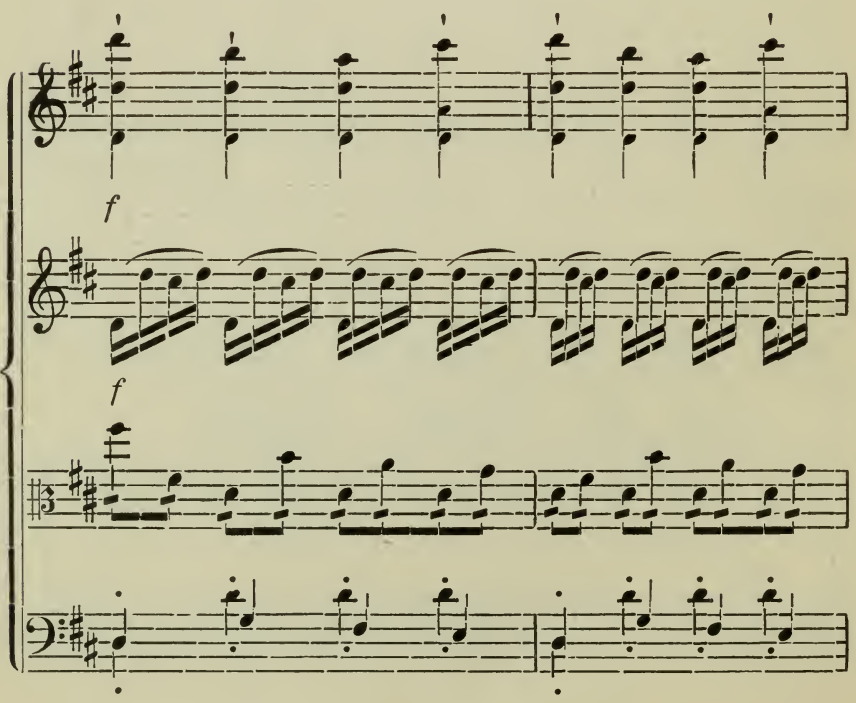
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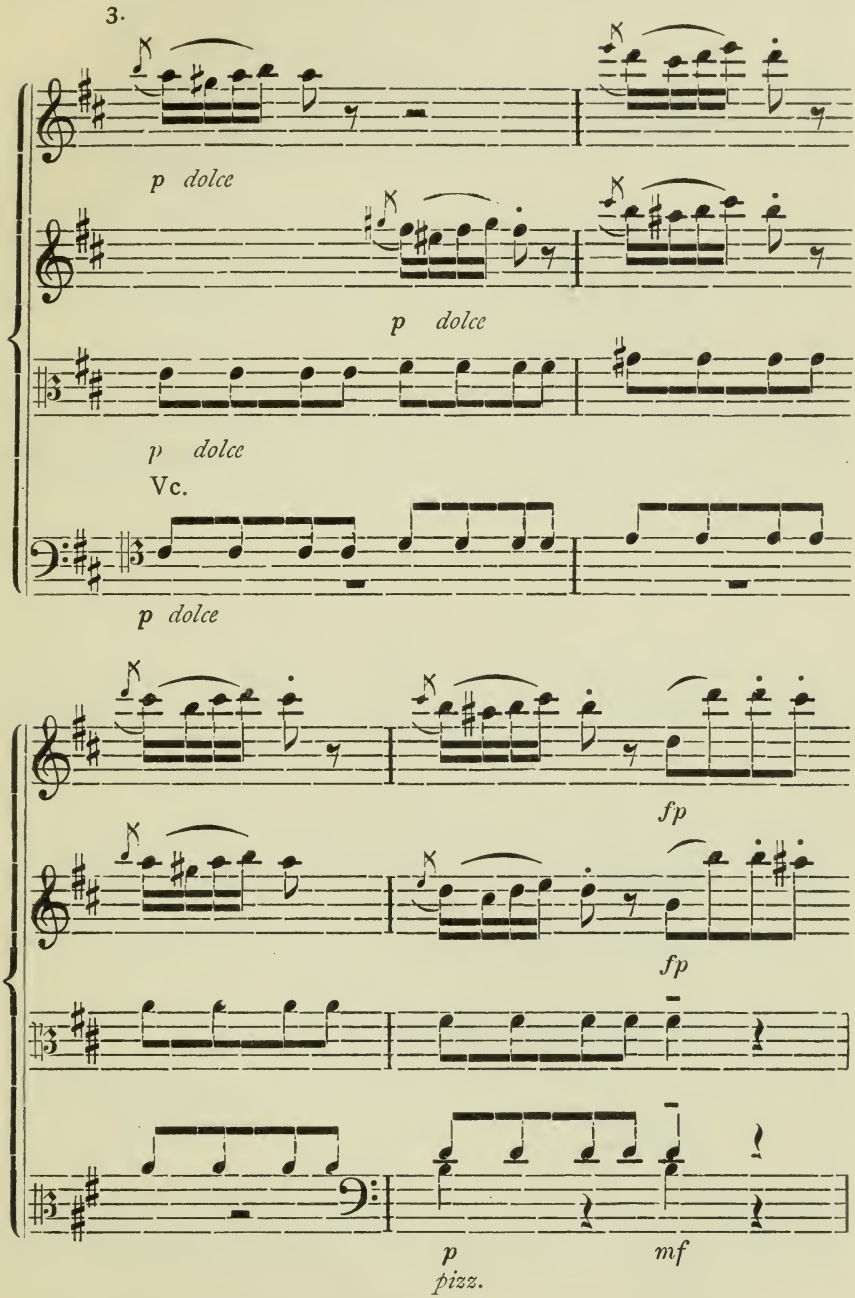
The slight deviations of this arrangement from the original require scarcely any justification. In the first bar the piano composition shows only simple tone repetition on *a*, in the second similarly on *d* (both with stationary harmony *D* major). The ampler means of the string orchestra allow us to have *a* and *d* played *tremolando* in both bars. In the third bar, the distance of the upper part from the accompanying bass having grown too large, doubling of the latter in the higher octave becomes desirable. We give this doubling to the second violins, having it played in semiquavers, lest the ceasing of the filling double *tremolo* should awkwardly be felt. For a further increase we give, in the fourth bar, a double *tremolo* to the viola. As the final *g* of the melody in this bar is rather weakening, we avoid it and give, by analogy of the second bar, the rising c^3 to the violins instead. The *g*, then, is taken over by the viola. In the following the full chords of the first violin in connection with the lively figuration continued in the second violin and the viola, and the double bass stealthily showing more activity in sustaining the pedal note *d*, mean a further heightening, until the *unisono* of the whole orchestra marks the climax, after which we end abruptly.

The second theme, which now follows (*p dolce*), the representation of the gentle and womanly, will suitably do without the double bass at first, and give the accompanying thirds to cello and viola. If we divide the first two turn-like motives between the two violins, and afterwards give the single continuation of the piano part to both violins in thirds, we are guided by a similar feeling as when in fig. 2, bars 5—6, we divided the upper part of the piano between the two violins, namely the desire *to avoid as much as possible solo-like* effects. With the exception, of course, of the *Concerto*, whose object is the separate production of a Solo instrument, it must be considered as an indispensible quality of real orchestral writing that the concert like stepping out of single instruments be avoided. Even though the first violins are the chosen exponents of the melody in homophonic writing, and though the fact that the first violin part in the orchestra is played by a large number of instruments excludes solo effects properly, still good orchestral writing will use every opportunity of letting other instruments take part in the spinning out of the main thread of the thematic development. One way of doing this is to let the first violins take melodic top notes of the piano writing as sustained notes and to assign the other melodic elements to the second violins. The further course of the first part will give plenty of opportunity for this kind of treatment (Fig. 3 from the sixth bar forward). Here again we make the double bass cautiously begin its participation (bars 3—5, where it plays, at first *pizzicato*, the fundamental tone of the harmony, which is wanting in the piano composition). We take greater liberty in bars 10—11 (counting the abbreviated repetition double), replacing the shake-like figuration of the two middle voices in part by chord *tremolo*. Also the separate writing of the bass part is rather free, but almost necessary if what is distinctly a piano-like version is to be replaced by something orchestra-like which will lead naturally to the following bars. To see, in such cases, the limit up to which one may go without doing violence to the original design, is, indeed, a function of artistic tact, but, for that very reason, one of the most repaying and satisfying aspects of such exercises in instrumentation. Bars 14—18 are in a still higher degree pure piano writing and demand a weighty and full presentment with the

resources of the string orchestra. This may be done, while keeping as far as possible to the original design, somewhat as shown below.

3.



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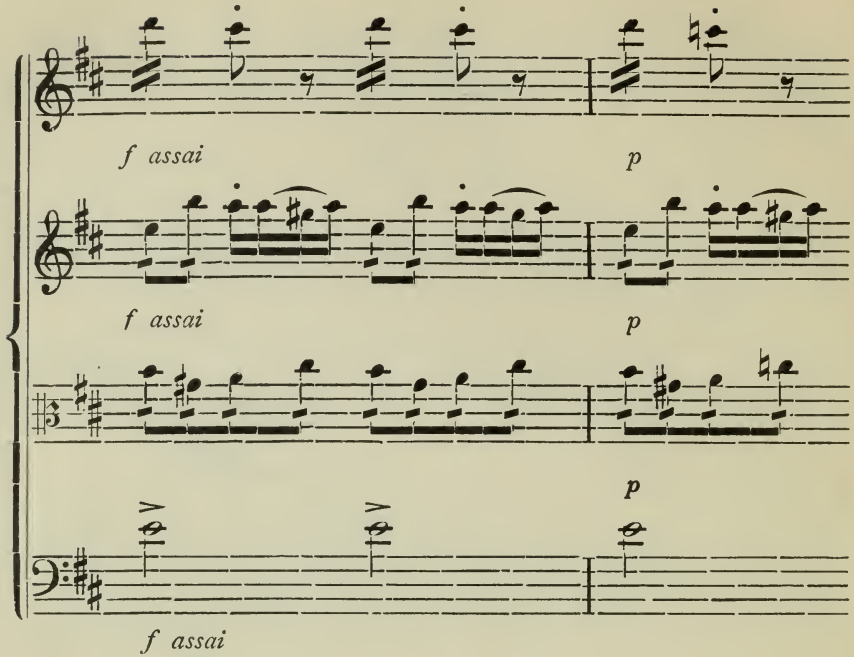
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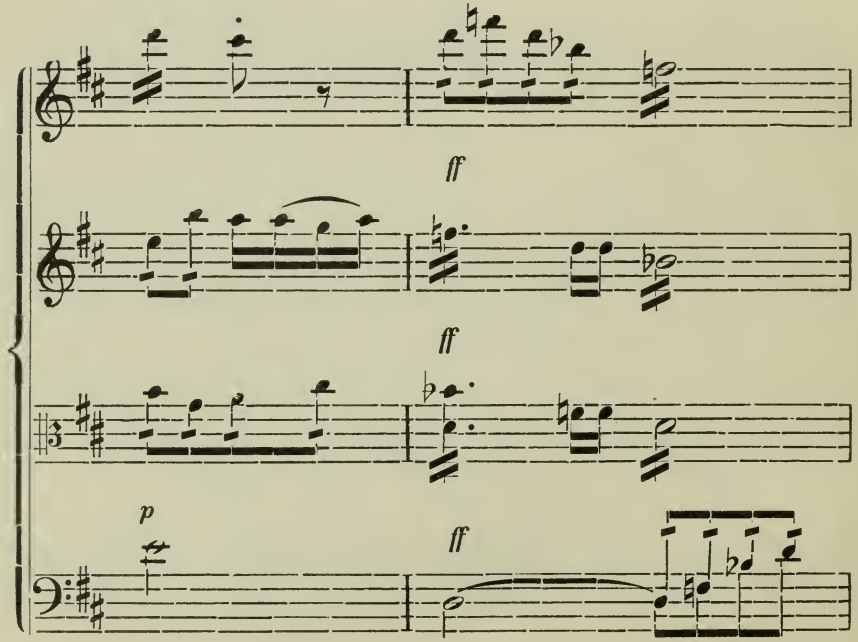
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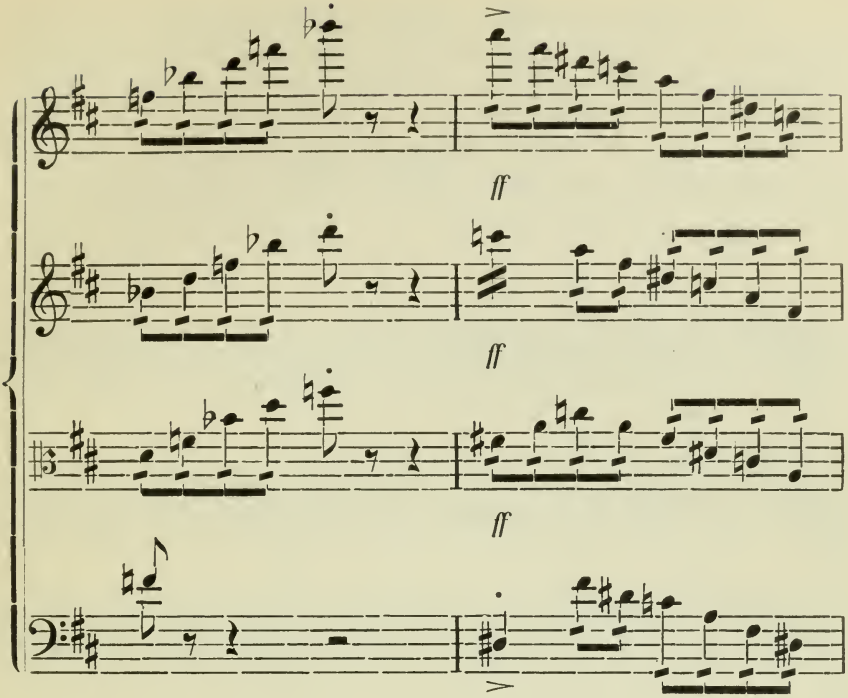
ff
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tr
sf
sf
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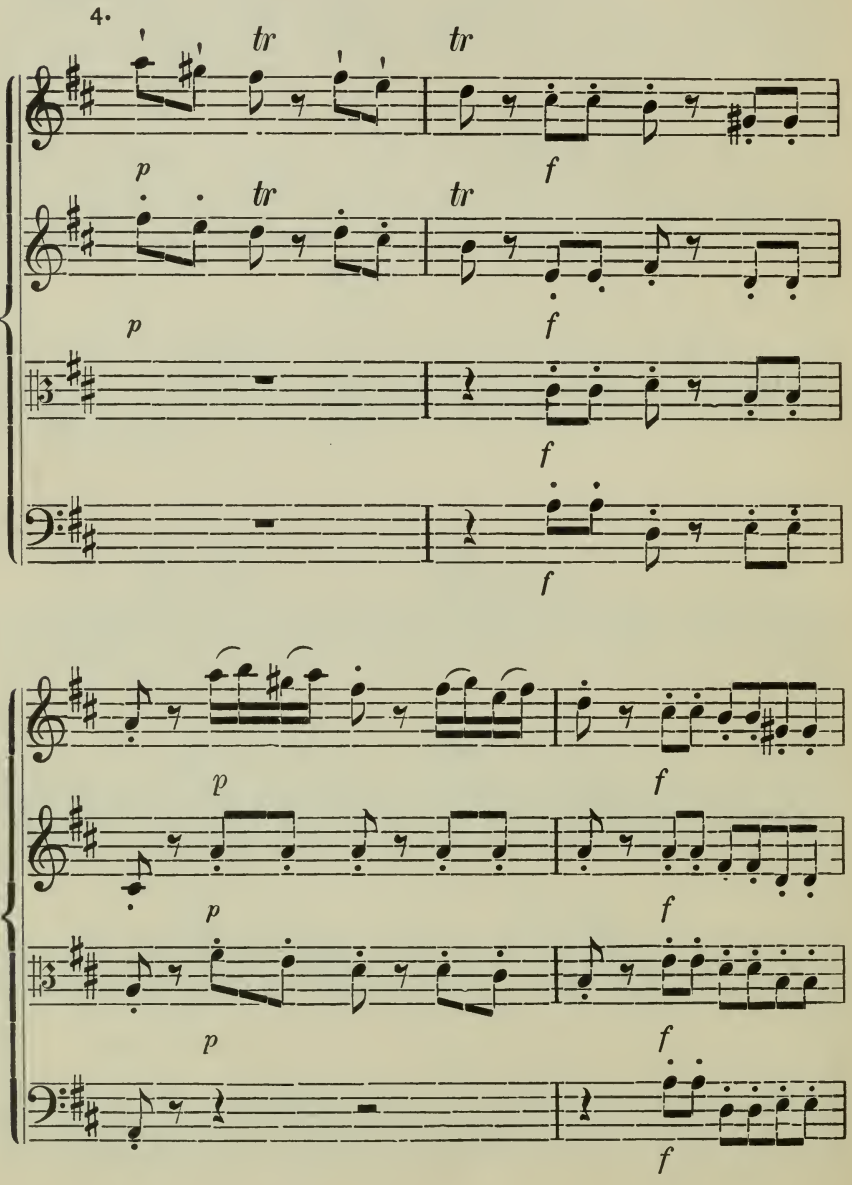
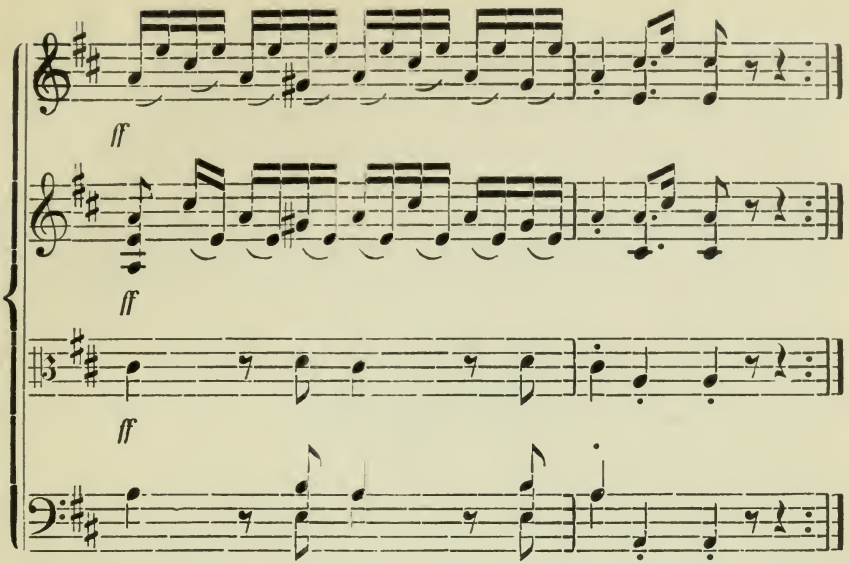
sf

The charming little concluding theme with its alternation of two-part and four-part writing need merely be transcribed as it stands. Possibly the final bars may be made a little more brilliant. The addition of a middle part in bar 3 is made almost necessary by the increased distance of the two parts (tenths instead of thirds).





If even in this first attempt the student's imagination feels it as a want that he has not at his disposal wind instruments and drums for greater contrasts — all the better. But only later on, when he has acquired facility in fully utilizing the resources of the string orchestra, may he give way to his desires. There is no reason why, at a higher stage of his studies in instrumentation, he may not return to his former exercises and re-write them with richer orchestration. Especially the development portions in Haydn will incite him to this, because the thematic formations, appearing in various positions of pitch, give opportunities for letting certain instruments stand out in groups (wood wind, brass) with excellent effect. But even these portions should at first be worked with the restricted means of the string orchestra. The picture will, even with this restriction, have much more colour than the pencil sketch of the piano composition. We give here the development of the D major Sonata, which comprises only 20 bars, leaving the transcription of the rest of the movement, with its partial transposition of the material of the first part, to the pupil himself, who will solve the problem without much difficulty. One of the chief aims in working the beginning of the development must be to divide even the string orchestra into *groups*, and not simply let the four (five) parts skip about in different positions. The

first two bars evidently bring the principal motive in Alto position (middle position); the third and fourth bars transpose it into the bass. Consequently we should certainly forego the basses in the first bars, so that their re-entry in the third bar may stand out properly. On the other hand we let the first violins cease in bar 3. The broken thirds, bar 4, being a purely piano-like figuration, are, of course, to be changed into a *tremolo*, but not in double stoppings, as that would result in consecutive fifths:

It will be better to let the *b*, the fundamental tone of the harmony, be rendered *tremolo* by first violins and violas (as well as be sustained by the double bass). Thus the whizzing effect will be attained sufficiently. The following bars suggest a further enrichment of the part writing. Sequential formations so elaborate as these:

are never given to a single part in symphonic orchestral writing, as such a part would assume a concerto-like appearance. It is a fundamental principle for such passages, therefore, to let several parts combine in rendering them, making them cross frequently. Bar 4 of Fig. 5, with its parallel thirds of second violin and cello, suggests parallel sixths of the two violins in bars 5 and 6. The further transformation of the passage, then, follows naturally. This increase of part writing, together with the *forte*, prompts us to give the 16′ support to the bass (double basses with the celli). Furthermore the syncopated sequence bars 7—10 will demand a higher position of the violins, that is to say, unless the second-third sequence is by

inversion to be transformed into a seventh-sixth sequence, the two violins will have to be placed an octave higher. But this again renders filling tones in the middle position necessary. These cannot be got in sufficient number except by the violins and violas dividing or playing in double stopping.

The bass run, bars 7 seq., is quite string-like (turning with the fourth) and can be kept strictly without producing a concerto-like effect. But its beginning must be placed an octave higher (as the modern double bass does not go down beyond $_1E$), the first imitation being played again in the lower octave. Towards the end the violas should take part in the semiquaver figure, to facilitate its transition to the violins. Naturally again the first violins will carry the passage an octave higher in order to increase the brilliancy, and this causes the second violins to proceed in sixths with them. Bars 13—16, showing decided piano writing, are probably rendered best by full *tremolo* chords with increased total compass. Bars 17—18 can be preserved pretty faithfully. They thus, indeed, give a slight taste of the end of a concerto *cadenza*. But we must bear this, in order to preserve the peculiar effect of the final two bars.

sf
cresc.
f
p
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p
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Vc.
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tr tr
Tutti
CB.

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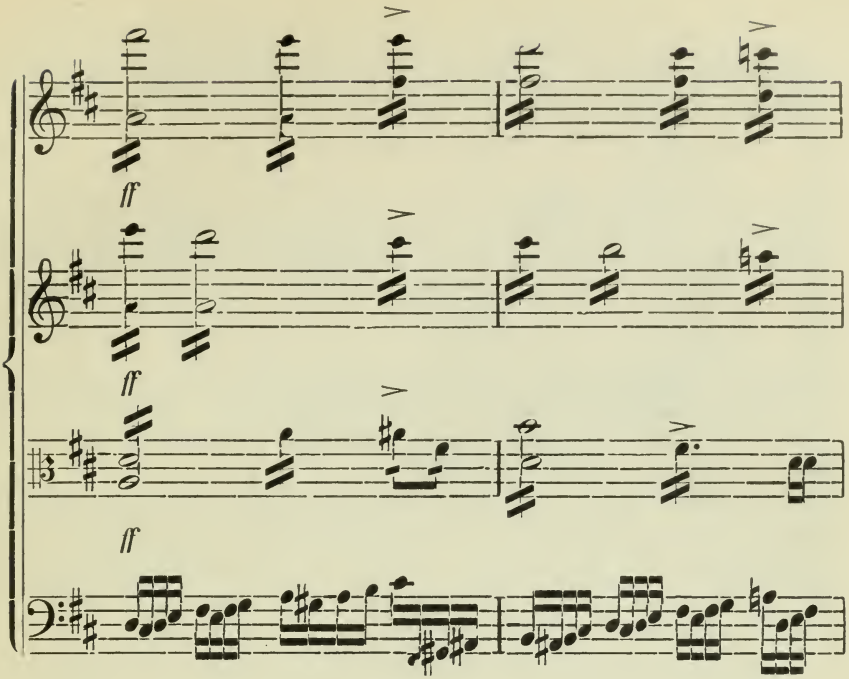
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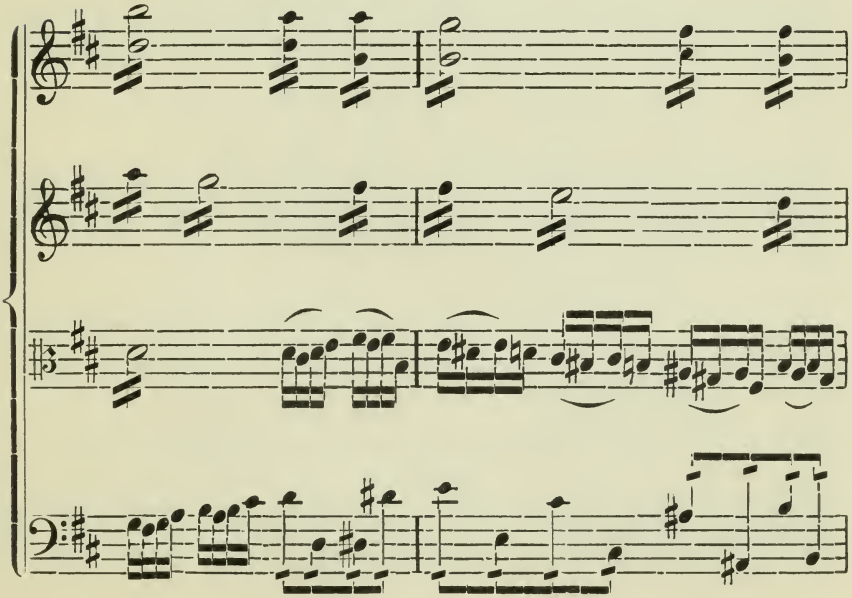

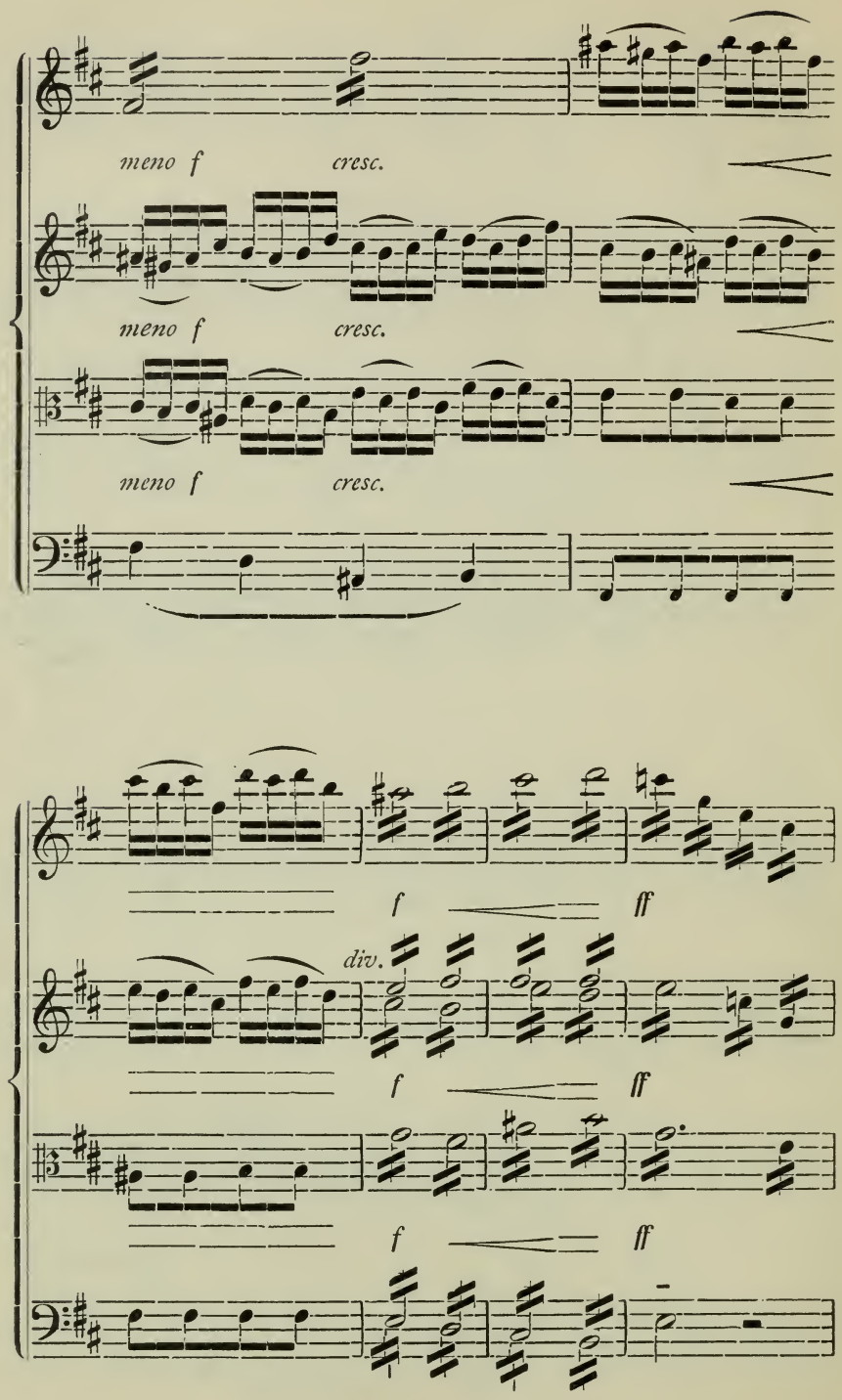
meno f
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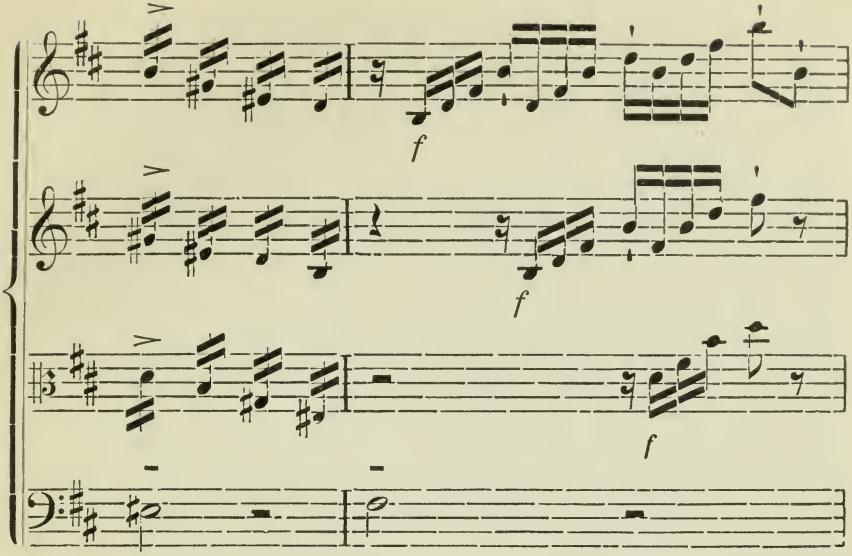
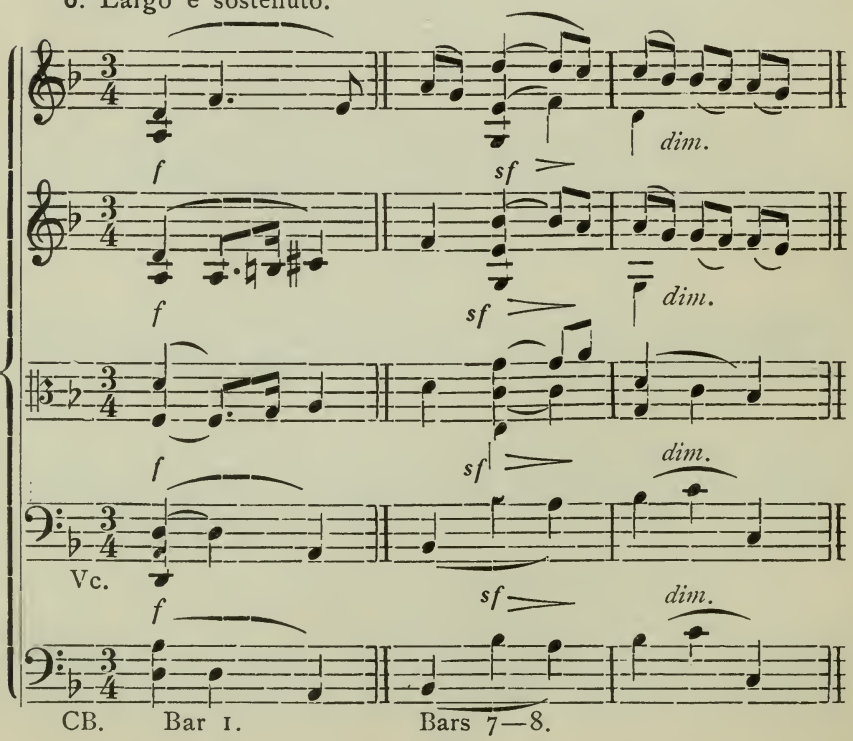


The little *Largo*, properly speaking only a transition to the final Rondo, and the latter itself may further strengthen the experience the pupil has gained in the first movement of the Sonata. The *Largo* gives frequent occasion for double stoppings at the thickly written chord

accents. These, of course, must not be transcribed accurately. The piano effect of such narrow positions in the bass as at bars 1, 7, 8, 10, 16 is altogether orchestral, producing the appearance of greater depth by means of the combination tones. It is rendered quite correctly by using the enormous volume of the double basses in middle position. Even in the initial chord the *D* of the piano will receive, in the orchestra, a thickening, not a deepening. But the narrow position of the tones above this *D* will have to be given up. At most (making use of the open string *D* of the double bass) we may write the fifth *D A* for the double bass, and similarly *D A d* for the cello. The dark ground colour of the piece forbids writing the upper parts an octave higher. At most we could do that at the beginning of the second part and in the fourth last bar (*g b e*♭, chord of the Neapolitan sixth). A few suggestions will suffice, as the rest is written strictly in four parts by Haydn himself, and can be transcribed almost literally:

6. Largo e sostenuto.



Bar 16.

Chapter II.

THE CLASSIC IDEAL.

As we have emphasized already, the string orchestra is, not only in the older practice of instrumentation, but even at the present day, the real foundation of the orchestra, comparable to the open flue stops of medium scale in the organ. The many other colours which the full symphonic or operatic orchestra contains, receive their peculiar values from their relation to the middle, normal, colour of the string orchestra. There is no reason why we should repeat or paraphrase, either in full or by way of extract, the characteristics of the various instruments, as given in the "Catechism of Musical Instruments." We are here concerned with the practical application of the knowledge and the views imparted there. But we must lay stress on this that between the restriction to the string orchestra alone on the one hand, and, on the other hand, the modern method of instrumentation, which makes the utmost use

of the peculiarities of tone colour not only of the single instruments, but even of their single registers and tones, — there lies a medium practice, levelling these differences to some extent, which we may call the normal or fundamental employment of the wind and percussion instruments of the orchestra. Round the kernel of the string orchestra, we find, therefore, first of all, like a rich covering, this plain employment of the other instruments, as fixed in the imperishable literature of the classic symphonies.

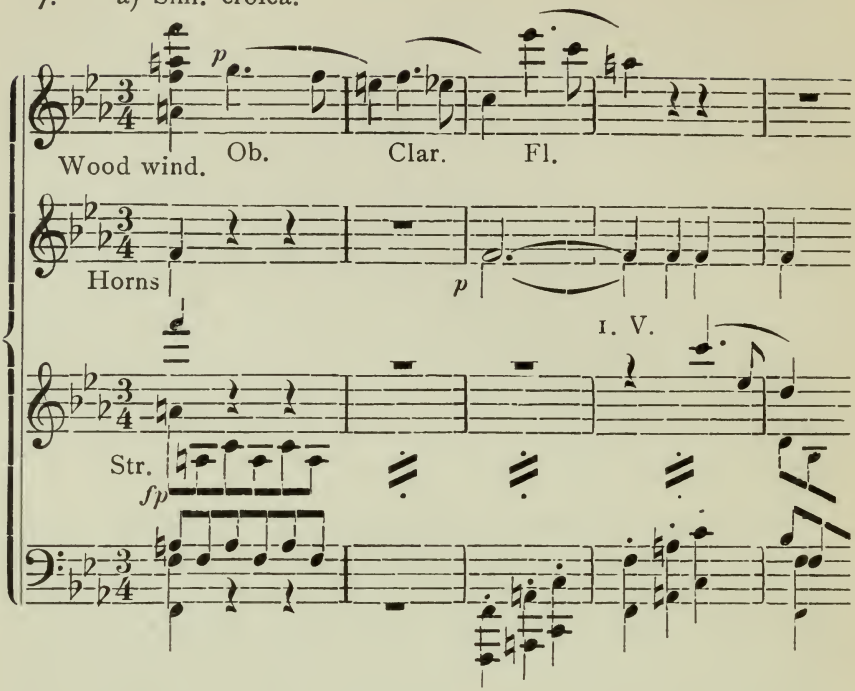
The instrumentation of Bach and Handel and their contemporaries is still quite analogous to the registration of the organ, that is to say, the foundation of the orchestra (the string orchestra) is strengthened and variously coloured by the addition of wind instruments. The wind instruments (oboes, flutes, bassoons) have no independent parts, but simply play in unison with the strings. Trumpets and drums, and also horns, are introduced only when the restricted scale of their natural tones allows participation in the thematic material. In other words, compositions with trumpets are conceived from the start in a trumpet-like manner, so that even for them the same principle (playing in unison) holds. Still even with these writers horns and trumpets are also used for mere filling tones; but in that case they usually participate in the principal rhythm of the theme. Whenever an instrument, or a pair of instruments (flute, oboe *d'amour*, two flutes etc.), is treated obligato, is made to stand out independently, this is done almost invariably through the whole extent of a piece, be it vocal or purely instrumental. Here too the origin in the Solo key-board of the organ is clearly discernible.

The classics of instrumental music (Haydn, Mozart, Beethoven) have replaced this organ-like intrumentation by a new practice to this extent that they adopt voluntarily for the wood wind what had been found necessary for the brass on account of their gapped scale, namely a deviation from the unison with the strings in the *tutti*, and the holding of harmony notes. Thus a special notation of the wind parts became necessary even in the score. Once the charm was broken in this fashion, soon the wind instruments became more independent by having assigned to them melodic progressions differing from those of the strings and crossing their paths. But a real in-

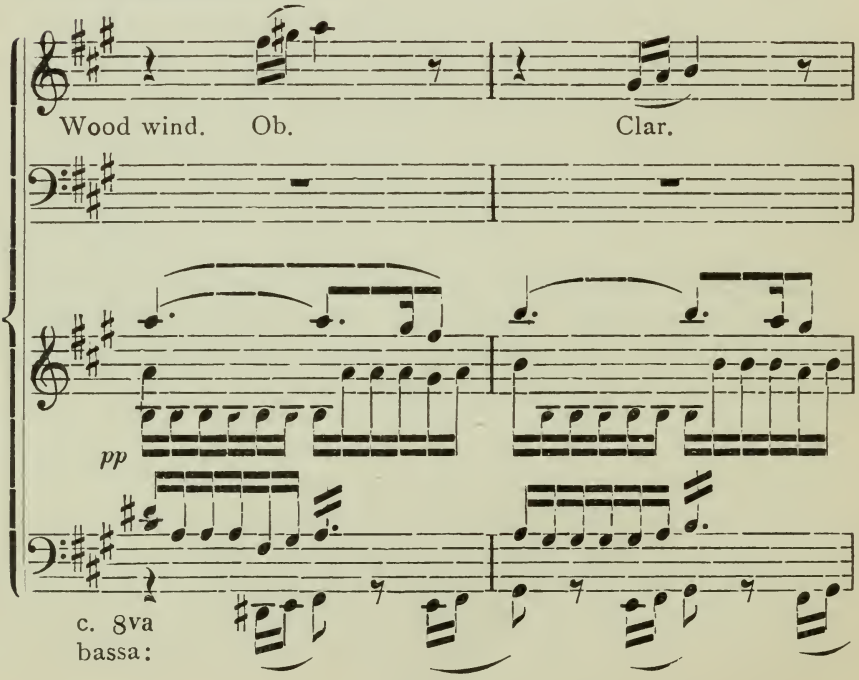
dividualisation of the single wind instruments is not yet to be found, and a solo-like use of a single instrument for a considerable time is avoided even more than in the previous period. We now find the usage of *covering, if possible, the soli of wind instruments by strings playing in unison with them*, that is, of levelling the special tone-colour. On the other hand the wind instruments readily combine to independent groups, which occasionally alternate with the strings, if only for a few bars. As the wood wind covers about the same total compass as the strings (excepting perhaps the extreme limits), they form a small orchestra in themselves, which can step out from its merely supplementary position, with very good effect. With a few essential restrictions (on account of the gaps in the natural scale of horns and trumpets) the same can also be said of the brass.

Particular importance, however, attached to the recognition of the fact that the colour of the wind instruments differs so strongly from that of the strings that the ear can easily differentiate the two and can, without irritation, *follow the crossing of their parts.* Thus a means for an extraordinary increase in the *plastic character of orchestral writing* was found. As on the ground of harmonies sustained quietly or made to oscillate in rapid *tremolo* by the strings, melodic lines or rhythmic figures of the wind instruments stand out sharply, just as well, or even better, stringed instruments draw sharp lines on the vividly coloured surface of sustained wind harmonies. But the classics have gone a step farther, and besides dividing the *tutti* into the three groups of strings, wood wind, and brass, have also made the single voices stand out from the *tutti* in variegated alternation, not with pretentious *soli,* but with single motives fitting into the whole with a most effective variety of expression. I need only call to memory passages as these of Beethoven's:

7. a) Sinf. eroica.



b) Symphony in A.



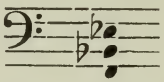
c) Symphony in A.
pp
Fl. 1⁰.
Two Ob.
Wind instr.
Fag.
Str.
pizz.
Horns.
Ob. 2⁰.
Two Clar.

This *breaking up of the compact massiveness* of the orchestral writing by means of an alternate use of instruments is one of the fairest fruits of the classic art of instrumentation. It is the clearest embodiment of the leading idea in the mature style of the classics: the combination of a variety of parts in the unity of thematic formation to which each part contributes essentially in its own time. Something very different, almost contrary, is the striking prominence given to single tone colours for longer melodies in the music of the Romanticists, especially in operatic and programme music, which aims at the calling forth of definite associations by means of the character of the single instruments, and undertakes to suggest definite series of mental images or chains of thought.

Our first task is to work our way to an understanding of the normal, levelling, art of intrumentation of the classics, that is, to learn how to dispose of the instruments and groups of instruments of the symphonic orchestra for the purpose of colouring in a suitable manner a development governed by merely musical principles of formation. For this again a movement of a Haydn Piano Sonata may serve as foundation, namely the final movement of the *E♭* major Sonata, No. 38. Let the orchestra at our disposal be the *full small symphony orchestra* with two of each, flutes, oboes, clarinets, bassoons, horns, and trumpets, but with three drums, lest without demanding quick re-tuning we should be too much restricted in their use. The orchestra would be "large", if we fixed four horns and, in addition, three trombones. But the simple movement does not require such an apparatus. As we are not concerned with a work newly to be invented, the making of an orchestral sketch is not wanted. Such a sketch is the piano composition before us, in which we see a "piano score." This "piano score", should, first of all, produce in the imagination a vivid image of the sound effects sketched by it, such as are producible by the richer instrumental apparatus. For this purpose it is first to be played repeatedly on the piano, and then to be read with a view to being rendered in score. In doing this with other exercises to be worked after the model of the present one, the pupil may make pencil marks fixing the instruments to which the melodies noted by the composer are to be assigned. In the first instance, of course, we think of the

string orchestra as the main bearer of the thematic design. As Haydn himself later on leads the principal melody up to *f'''*, we must at all events preserve the beginning in middle position. At first, of course, we give the melody to the first violins, mainly for the reason that regularly they are more numerous and, even with equal numbers, on account of better players and better instruments prove superior to the second violins. This is of importance even in the *piano*, or rather particularly in it, because the melodic progression of the first violin remains clearly discernible, even when the second violin with its accompanying harmony tones gets higher than it, as here at once in the first few bars. The other division would run much more danger of the attention being drawn from the principal melody to the long notes of the accompaniment. From our experience in playing from score it is clear to us that the accompaniment will not confine itself to a repeated sounding of the fundamental note, which on the piano with its long-sounding tones and strong first overtones is sufficient. We shall, therefore, exhaust the whole accompaniment noted in the piano composition with the celli and double basses, and have the violas and second violins to spare for a further filling up of the harmony in accordance with the quiet character of the opening. As over the bass, which remains stationary on *E♭*, at first only tonic and dominant are alternating, the idea of letting the horns take part with a figure suitable to their resources (in *pp*, of course) might easily suggest itself. Nor would the simplicity of the theme be endangered by using the drums for a gentle marking of the bar accents. Then the wood-wind, in ascending order, might imitate the horn figure, and, as the beginnig twice recedes into *pianissimo*, the whole passage may die away in a general rest. By using the wind instruments in this alternating fashion, we do justice, right from the beginning, to the principle first established by Haydn, of avoiding sound effects that are too thick, by silencing instruments alternately. Instead of the whole notes of the piano composition it will be better to satisfy ourselves to let the double bass sound the fundamental note for a dotted quarter note, in accordance with the extent of the endings of the melody. Thus the opening of our score—which, as already remarked, should be written out in full, not as mere sketch—will receive the

appearance of Fig. 8. Instead of the original key we might have selected one that would be more suited to the strings and more brilliant, namely *D* major, or even *E* major. Still *E* flat major is sufficiently convenient for the orchestra. It is chosen readily when trombones are employed. But although we have decided to do without these, we will keep the original key, and shall, therefore have to write for Horns in *E* flat and Clarinets in *B* flat. For the three drums we shall require, at first, tuning in



as bars 5—8 make the *F* desirable, and Tonic and Dominant (*e♭* and *B♭*) are most obviously needed for the drums. Of course, we shall not write the drums in the older, transposing, fashion (*G c* in the general sense of Dominant and Tonic of the prevailing key), but write the actual notes we want. Instead of the short $^{2}/_{4}$ time of the original we will use the fuller 𝔠:

8. *Presto.*

Fl.
Ob.
Clar. in B
Fag.
2 Corni in E♭
2 Trombe in E♭
Timpani in F, B♭, e♭
V. 1⁰
V. 2⁰
Vla.
Vc. CB.
pp
pp
p
p
p
pp

p
dim.
p
dim.
dimin.
pp
dimin.
pp
dimin.
pp

Bars 5—8 could, at the present day, when horns are capable of the whole chromatic scale, be given exactly as transposition of bars 1—4, a tone higher with the same instrumentation. But this would be little in accordance with true orchestral style, and would expose the rosalia in its full nakedness. The pallet of the orchestra is rich enough in colours to give to such sequences a peculiar charm by slight changes in the instrumentation. Above all a sensitive musician will avoid spoiling the beautiful effect of the horn figure in bars 1—2, which used only natural tones and was suggested altogether by the peculiar nature of the instrument, by shifting it into a position uncongenial with the nature of the instrument. We shall, therefore, leave out the horns in this repetition of the passage altogether, and, instead, utilize the instruments not employed in bars 1—4, beginning above with the oboes, and ending below with the bassoons. We give the trumpet a sustained *pp* tone, partly on account of the missing horns, partly to have this instrument, which has not yet been introduced, ushered in in the least ostentatious manner. For such single sustained notes instrumentation can, of course, make use of the whole compass of the valve instruments. My remark about the horn figure should not be misunderstood. If, on account of the simplicity of the beginning, we shrank from displaying the chromatic arrangement of our modern horns, we are not by any means going to have our hands tied and to forego altogether the possibility of introducing horn-like passages in positions other than those natural to the selected key of the instrument. On this question I refer the reader to the Catechism of Musical Instruments, p. 62. For horn or trumpet flourishes, in which the nature of these instruments is particularly made prominent, a frequent change of valves is certainly to be avoided. But outside the sphere of such exhibition of the special nature of the instrument there is no reason why the use of the tones at our disposal should be restricted. We shall write, then, thus:

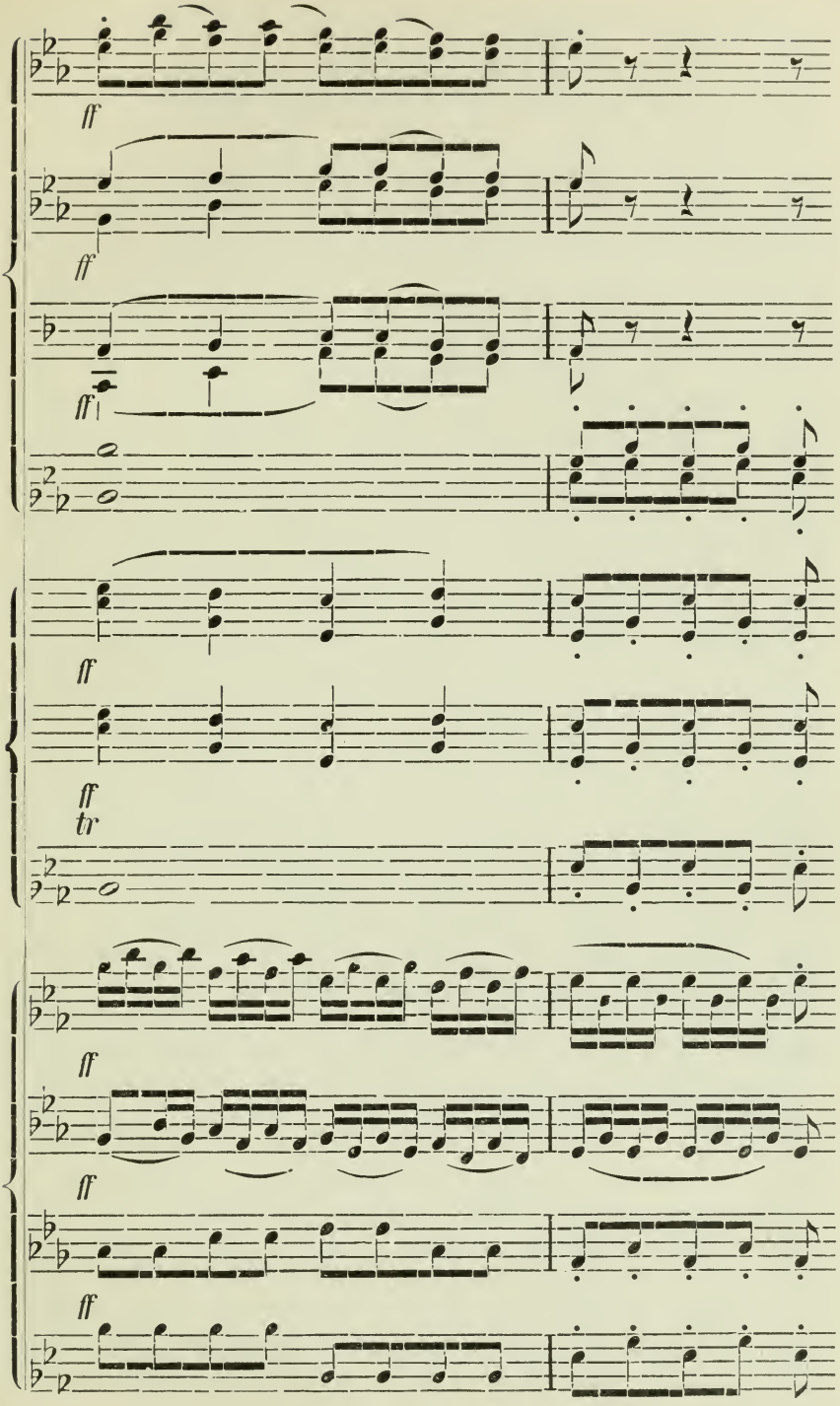
9.
p
dim.
p
p
dim.
pp
1a
pp
mp
dim.
p
dim.
p
dim.
pp

p

These two four-bar starts form together as it were only the first two chords of a cadence (*T*—*Sp*), which is completed by the first two bars of the *forte* (*D*—*T*). Observe the scale-like progression of the opening of the motives (Fig. 8 six-times *g*, Fig. 9 six-times *a* ♭, Fig. 10 six-times *b* ♭). In the Transcription for orchestra this six-times repeated *b* ♭ need not necessarily be given to the basses. At least there is no reason for not letting the brass and the drums participate in it, the intended effect being evidenly that of power. As the motive stands in direct parallel to the two preceding beginnings (bars 1 and 5), its position in the bar is, of course, to be fixed in the same way. Hence the replacement of the 𝄾 rest by in my edition is wrong. Notwithstanding, however, the following bars are noted correctly; for although the last *b* ♭ falls on the beginning of the bar, the simultaneous entry of the semiquaver movement in the upper part changes the meaning from strong to weak beat. Only when we understand this dove-tailing of end and beginning, we can explain this passage satisfactorily, and fully appreciate its beauty. Of course, the theme of the upper part must enter with its full apparatus of accompaniment on the second last *b* ♭. The fact that this accompaniment in its essential part, namely the bass, is derived from the principal theme of the beginning, is one of those marvellous results of artistic inspiration which may astonish even the composer himself, in as much as they bear testimony that in his creating there is, beyond his conscious will, a supreme law of logical consequence and artistic unity.

f
f
f
f
f
rit. . . a t.
rit. . . a t.
f
f
tr
a t.
rit.
f
f
rit. . . a t.
f
f

più f
più f
pf
tr
più f
più f
più f


ff
ff
ff
ff
ff
ff
tr
ff
ff
ff

We can see easily that what was thematic

has here become counterpoint, but does not produce the same effect as in the opening bars, because the violin passage which concludes the cadence forces us irresistibly to understand the position in the bar differently, namely in such a manner that the tonic harmony falls on the strong, the dominant on the weak half of the bar.

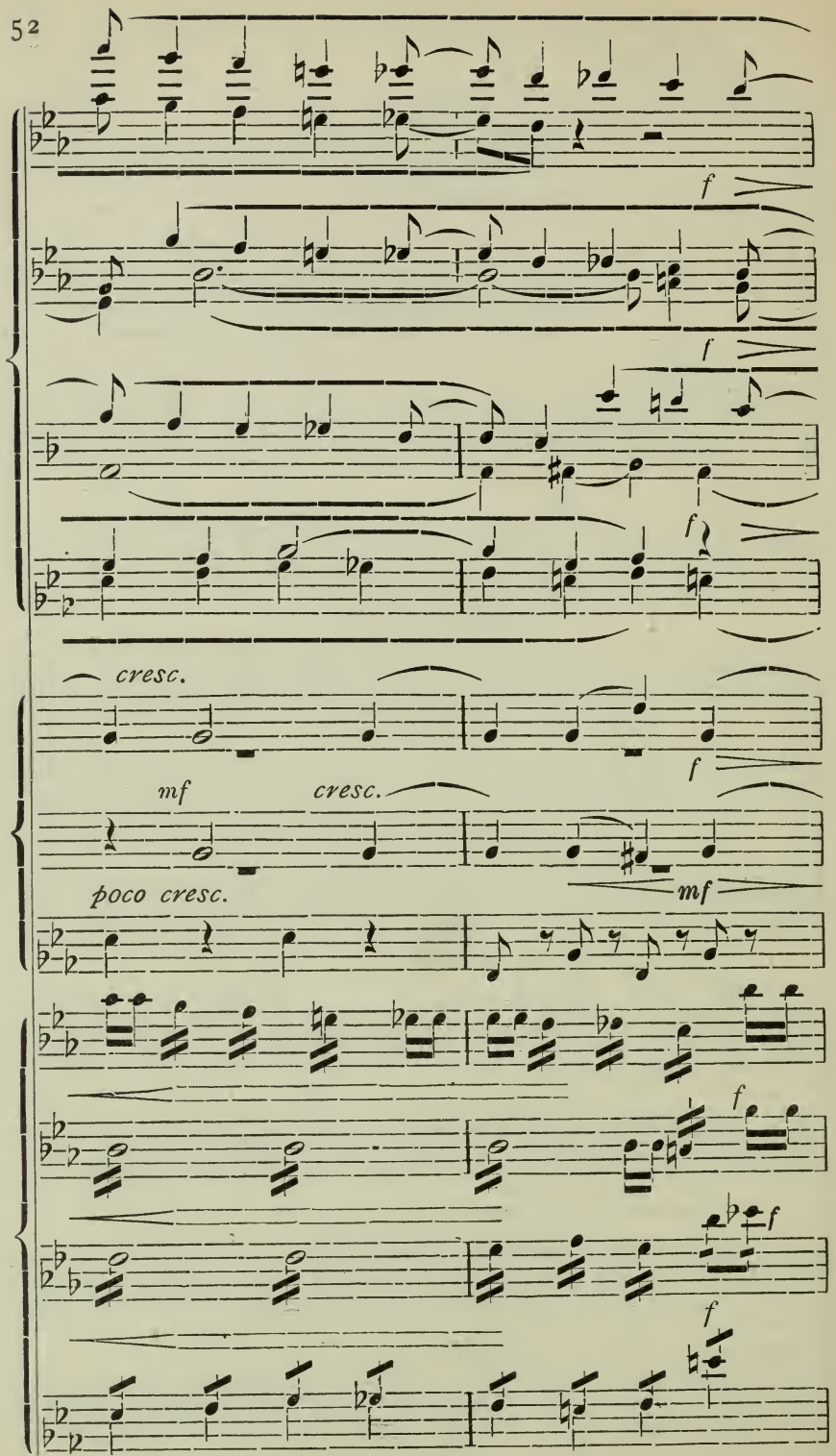
It is by no means abnormal to introduce the full *Tutti* of our orchestra so soon. Many a symphony movement opens with its full weight. Besides, the present movement contains so many passages which exclude the *tutti* that it would be altogether wrong to avoid it here where the piano sketch clearly demands a strong contrast to the initial bars by the prescribed *forte* and *fortissimo* and the rustling semiquaver figuration. Immediately the continuation points to a more delicate colouring. The *cantabile* re-opening with only one part calls for rendering by a wood-wind instrument. If rendered by the first violin, as at the very first opening of the movement, it would lose to a great extent the effect of contrast which is evidently intended and clearly suggested by the change of mode (*c* minor — with a view to modulation to the dominant key according to the well known formula $T — Tp = Sp — D — T$) and the chromatic element.

But to which instrument shall we assign it? The flute would appear too feeble after the strong *tutti*; for oboe or clarinet it lies a little high; at least, it would sound "high," higher than is intended. We must get perfectly clear here about a phenomenon of instrumental effects which requires attention in many similar cases, and, if not taken into consideration, gives rise to many disagreeable deceptions. I mean the *relative effect as to pitch* of melodies or melody portions *according to the position on the instrument rendering them.* Every instrument, as every singing voice, has one middle position whose tones sound plain, that is relatively neither high nor low. Thus about the middle of the once-accented octave a Tenor sounds high, a Soprano in the same pitch low, an Alto neither high nor low, but plain. Of the wood wind only the flute

sounds plain in the position of our theme. If we wish to give it to the oboe, we must take it an octave lower, where the instrument has its heart-alluring expression. The continuation will have to be dealt with differently anyhow, in order that a long solo, which would be against the symphonic principle, may be avoided. Furthermore we shall have to use octave doubling, and thus shall quite naturally return to the pitch of the original. With the accompaniment we shall of course deal still more freely as regards the position, nor, above all, bind ourselves as to the limits below. Here again the above consideration may clear our view once for all and remove any false scruples. For, middle, high, and low positions are concepts which must be widened very much, when we deal with orchestral effects. A main consideration will always be what dynamic degree is intended or suitable. Stronger effects invariably necessitate a widening of the actual compass, make octave doubling desirable above and below, in other words deviate more from the piano practice. If we take the cello as bass for the present passage, the original position will not, indeed, be technically awkward for it, but will sound "high," that is, assertive, and stand out more prominently than is desirable. That for an orchestral *sforzato* (bar 3) three-part writing is not sufficient, is already familiar to us. Still more the adjoining syncopated passage in two parts requires a thorough working in of orchestral filling. We are, therefore, again in the pleasant position of having a free hand in inventing accessory matter that will give proper relief to the given thematic material. In doing this let us only keep to our principle of treating the string orchestra as foundation, assigning to it the main design. We will, therefore, as soon as possible return from the separate production of single wind instruments to the blending of wind instruments and strings.

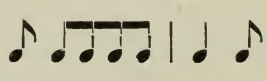
II.
2⁰
p
cresc.
1⁰ dolce c. espr.
dim.
1⁰ p
p cresc.
p cresc.
p
p
Vc.

536
McCUNE SCHOOL OF MUSIC & AR

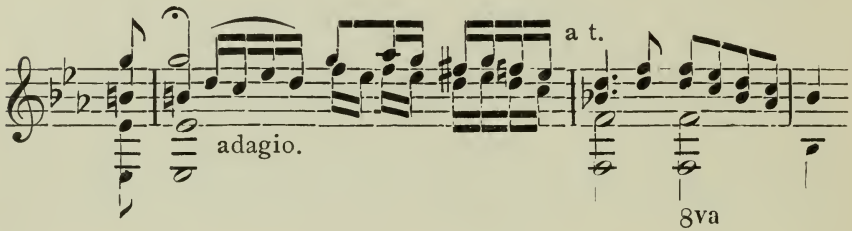

f
f
f
cresc.
f
mf
cresc.
poco cresc.
mf
f
f
f

dim.
dim.
pp
dim.
p
dim.
p
dim.
p

The half cadence on the *f* major chord reached with the end of the figure, of course, means the open door for the second theme. It should not be overlooked that the kernel of the second theme, too, has the rhythm



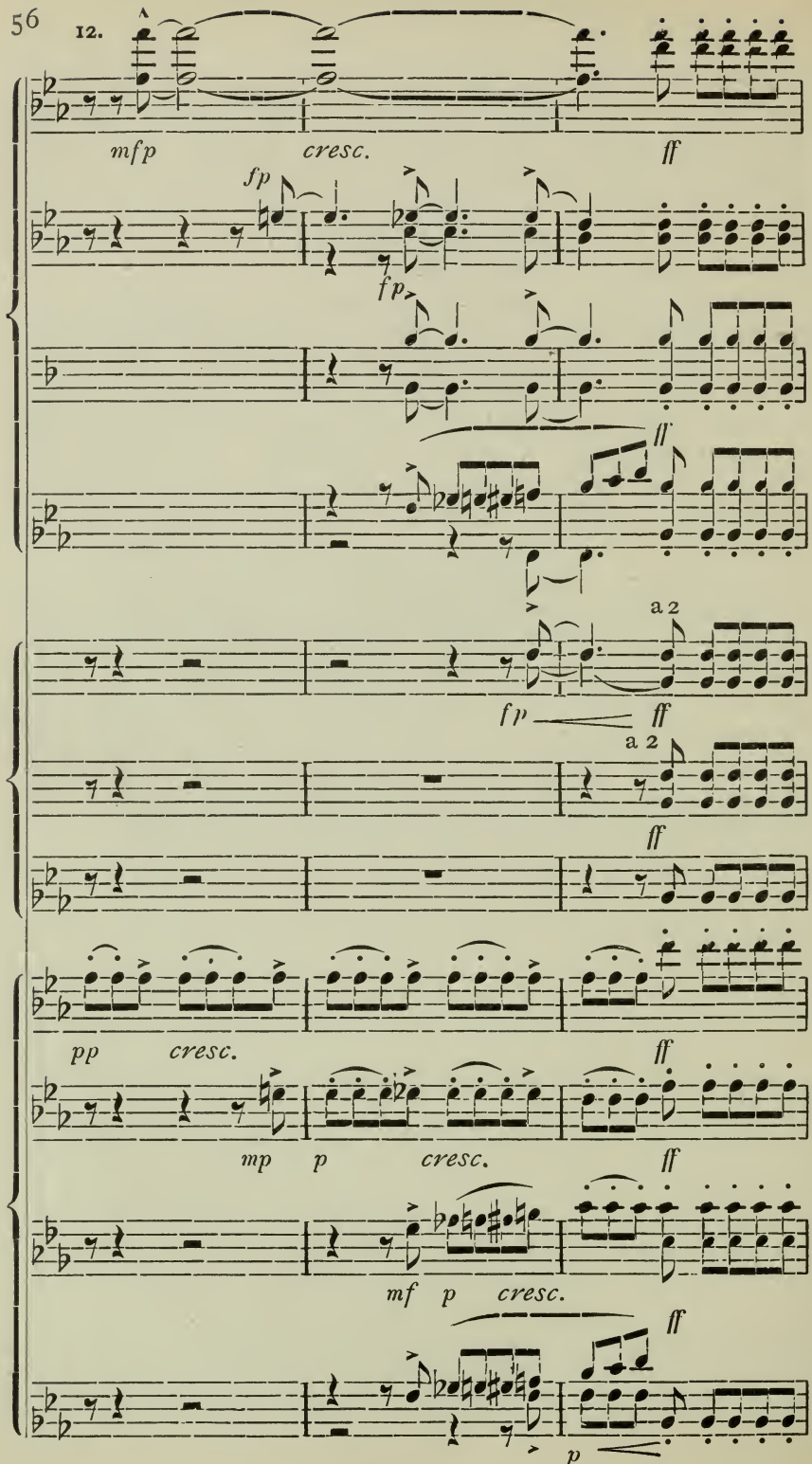
In this again the strict logic of the invention and working of the later Haydn manifests itself. The more intimate, affectionate, adagio-like nature truly characteristic of the second theme shows itself only after the pause, in the marked prolongations of the suspensions and the cadential runs in thirds. The latter, in order to be fully understood must be imagined as written somewhat like this

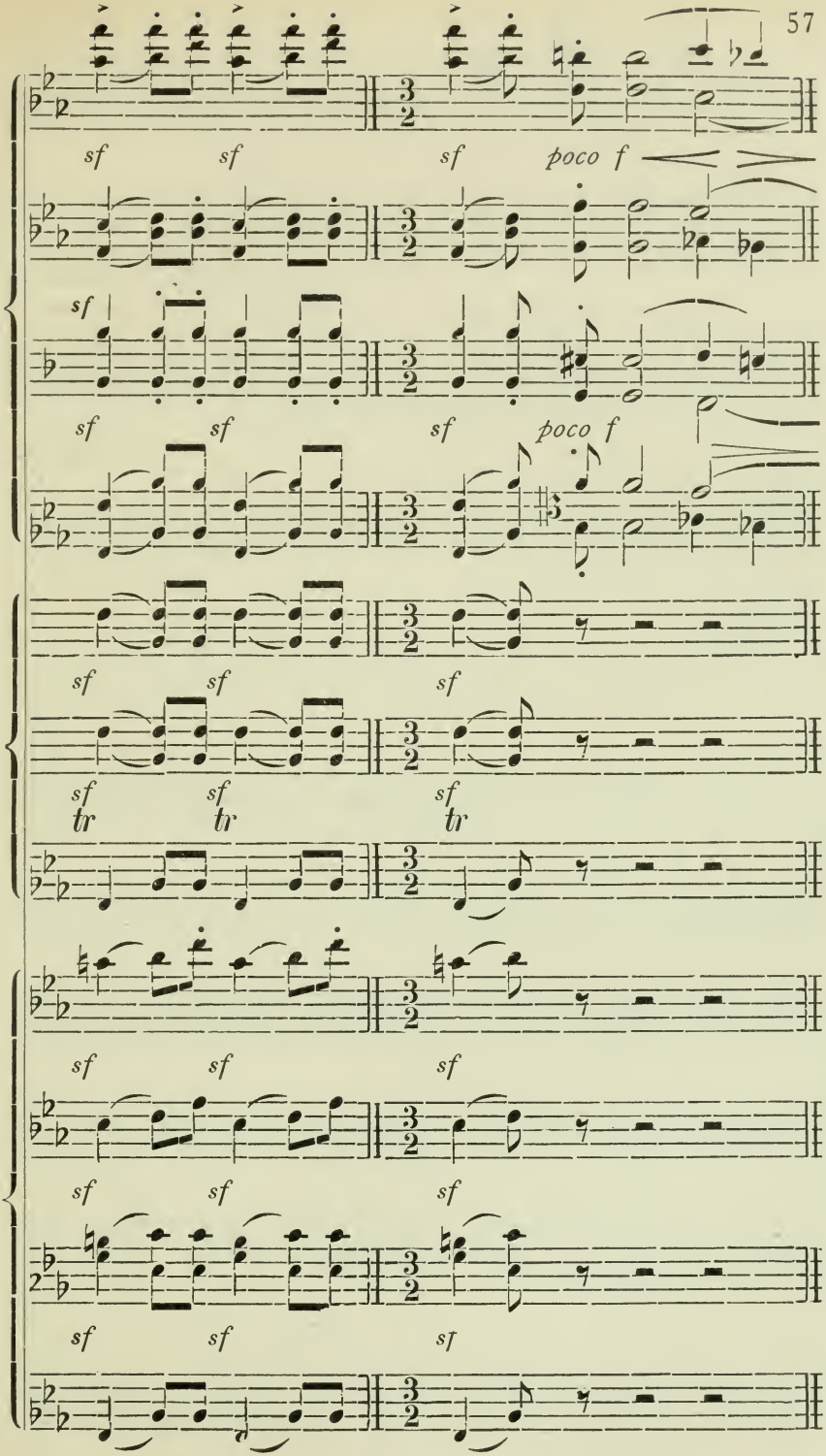


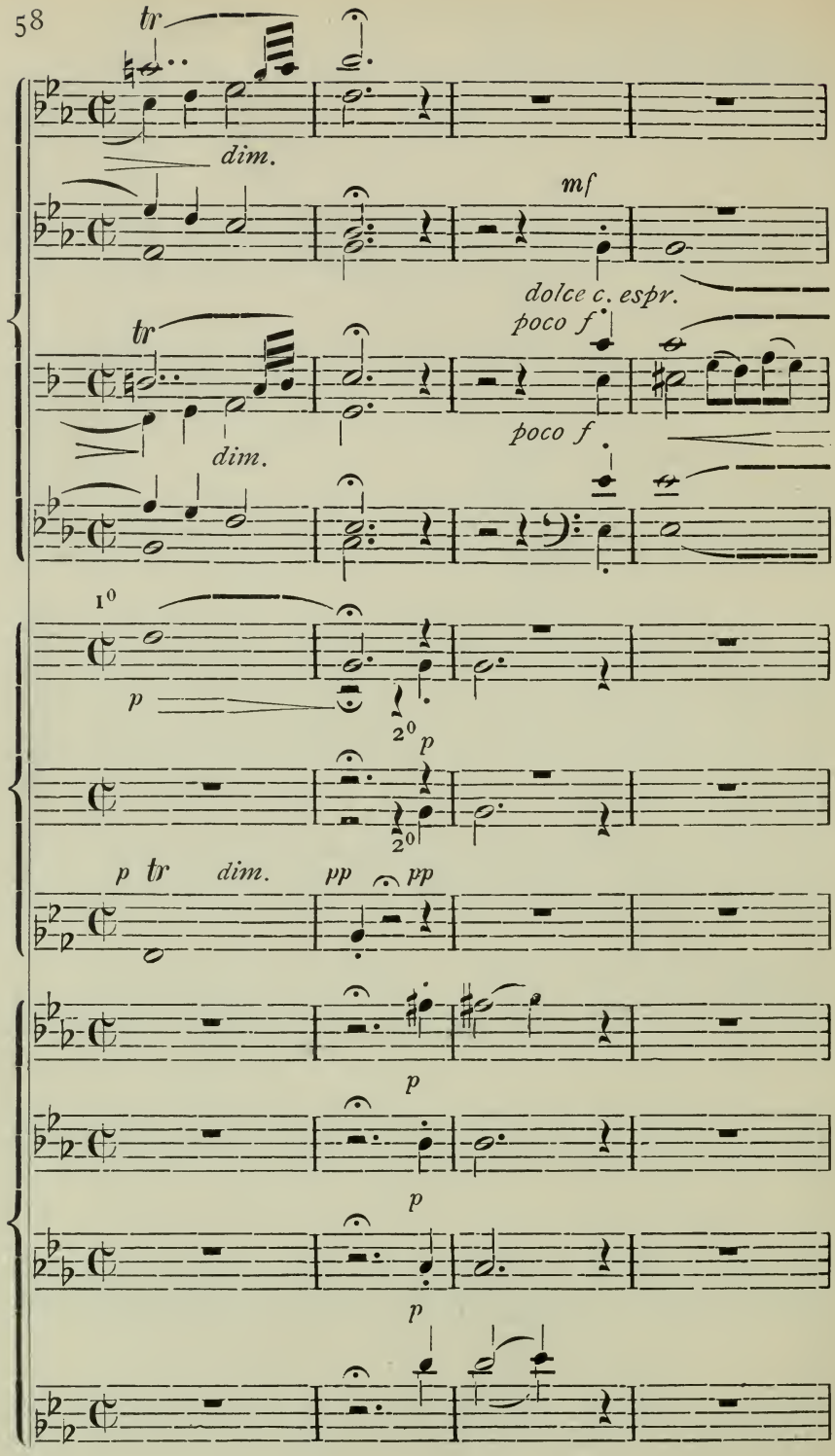
There is scarcely any doubt that the wind instruments, in particular the clarinets, will have to stand out again characteristically. The *sforzati* of the opening bars of Fig. 12 mark, in unmistakable fashion, beginnings of motives. When they bring new voices, their effect is like that of stars flashing up on the evening sky or like flower buds opening suddenly. We shall use them, of course, for the purpose of gathering instruments for the *ff tutti*, which must not break in suddenly, particularly as it is only very short. It will be advisable to bring the principal melody of this *tutti* in agreement with the parallel passages, which, instead of a sixth (*f f f f f | a b* ♭) show a fourth (*c c c c c — g a* ♭), as the latter would sound weak, if first in the corresponding place the sixth were made prominent. We, therefore, give the first violin the form *d d d d d | a b* ♭. The numerous *f*'s of first flute, clarinets, horns, and trumpets, however, do sufficient justice to the original, explaining at the same time what induced Haydn to write *f* as highest note for the right hand: he only wanted chords as full and thick as possible, to mark these passages

(which, of course, again have their germ in the initial motive). According to the views put forward already, it is only natural that from bar 5 forward we should change the instrumentation several times (bars 5—7 bassoons and clarinets doubled in the upper octave by oboes and flutes, bar 8 the string orchestra, bars 9—11 again wood wind, but without flutes).

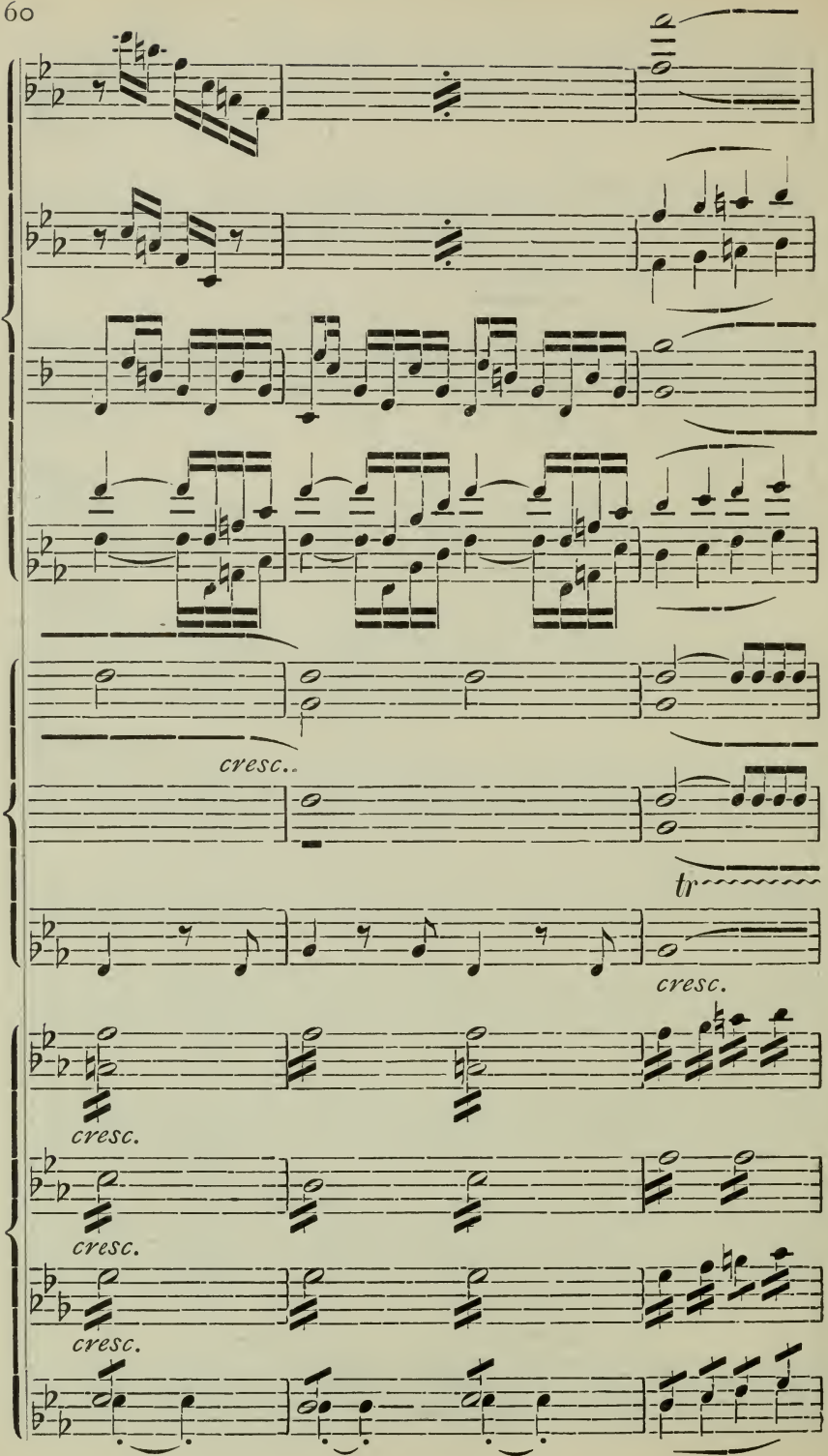
A problem is presented by bars 12—18, which in the piano composition show a piano-like unison form of figurations, which certainly cannot be retained. This form makes full use of the fact that on the piano tones sound a long time, so that the successive semiquavers are gathered together to form full chords. The rather full sound (*forte* being prescribed) demands, in the orchestral rendering, at least sustained harmonies along with the figuration. The climax (at the g♭ major chord) has a decided claim to the *tutti ff*. We shall use, for the dead colouring, the string orchestra in its full width from double bass to first violin. If we sustain the wide harmonies in *tremolo*, we have still the possibility of giving the wood wind a slight modification of the arpeggios of the piano composition, at least for the two most important bars, 12—13. Horns and trumpets are used for filling, and even the drums may be made to participate. Thus the passage will present the following appearance:

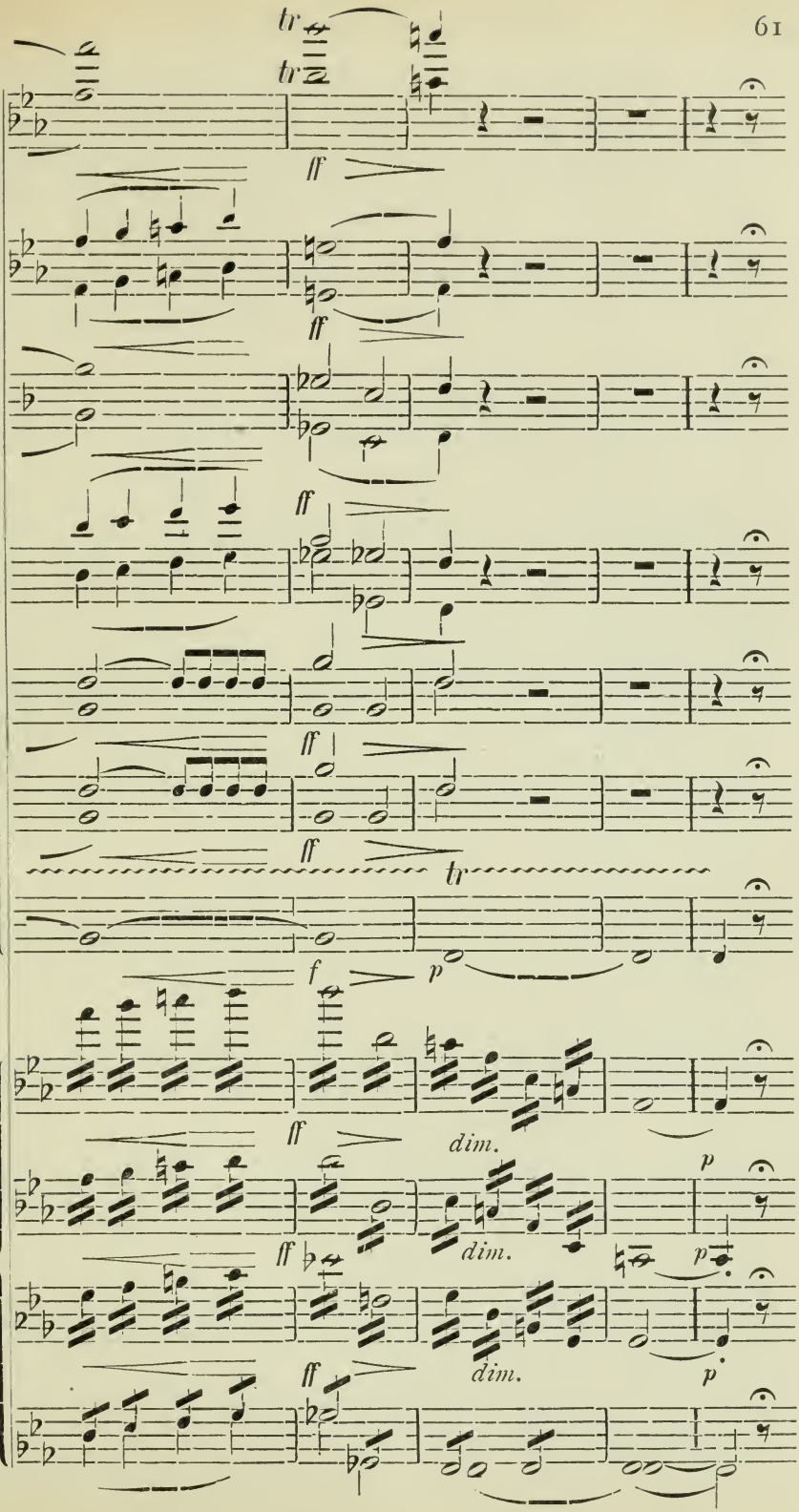

12.
mfp
cresc.
ff
fp
fp
ff
a 2
fp
ff
a 2
ff
pp
cresc.
ff
mp
p
cresc.
ff
mf
p
cresc.
ff
p

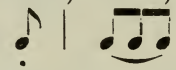

sf sf sf poco f
sf
sf sf sf poco f
sf sf sf
sf sf sf
tr tr tr
sf sf sf
sf sf sf
sf sf sf


tr
dim.
mf
dolce c. espr.
poco f
tr
dim.
poco f
1°
p
2°
p
2°
p tr dim.
pp
pp
p
p
p

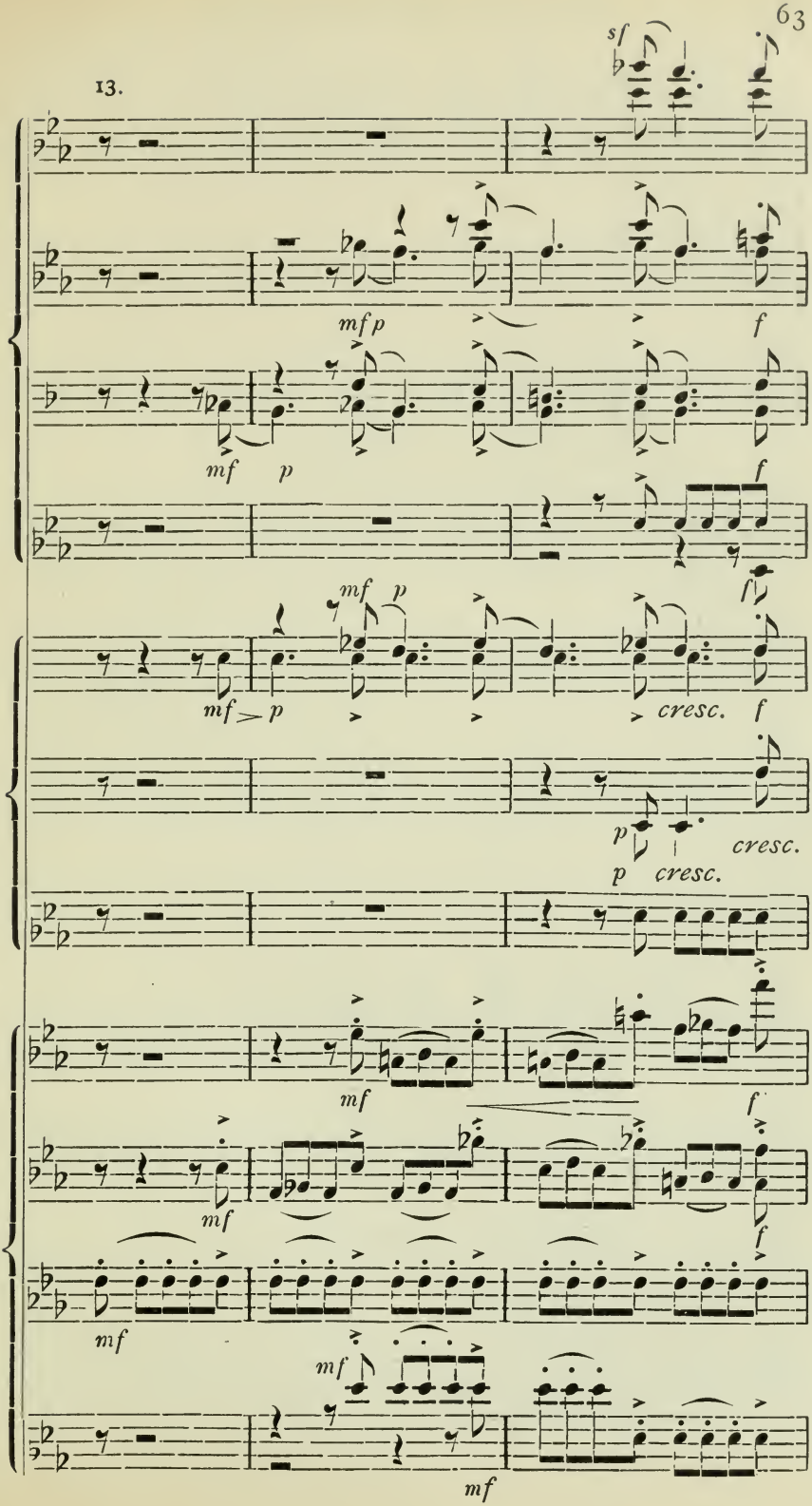
a 2
p
cresc.
a 2
p
cresc.
a 2
dim.
p
cresc.
p
p
cresc.
p
p
mf
p
p
mf
p
mf
Vc.
p
mf

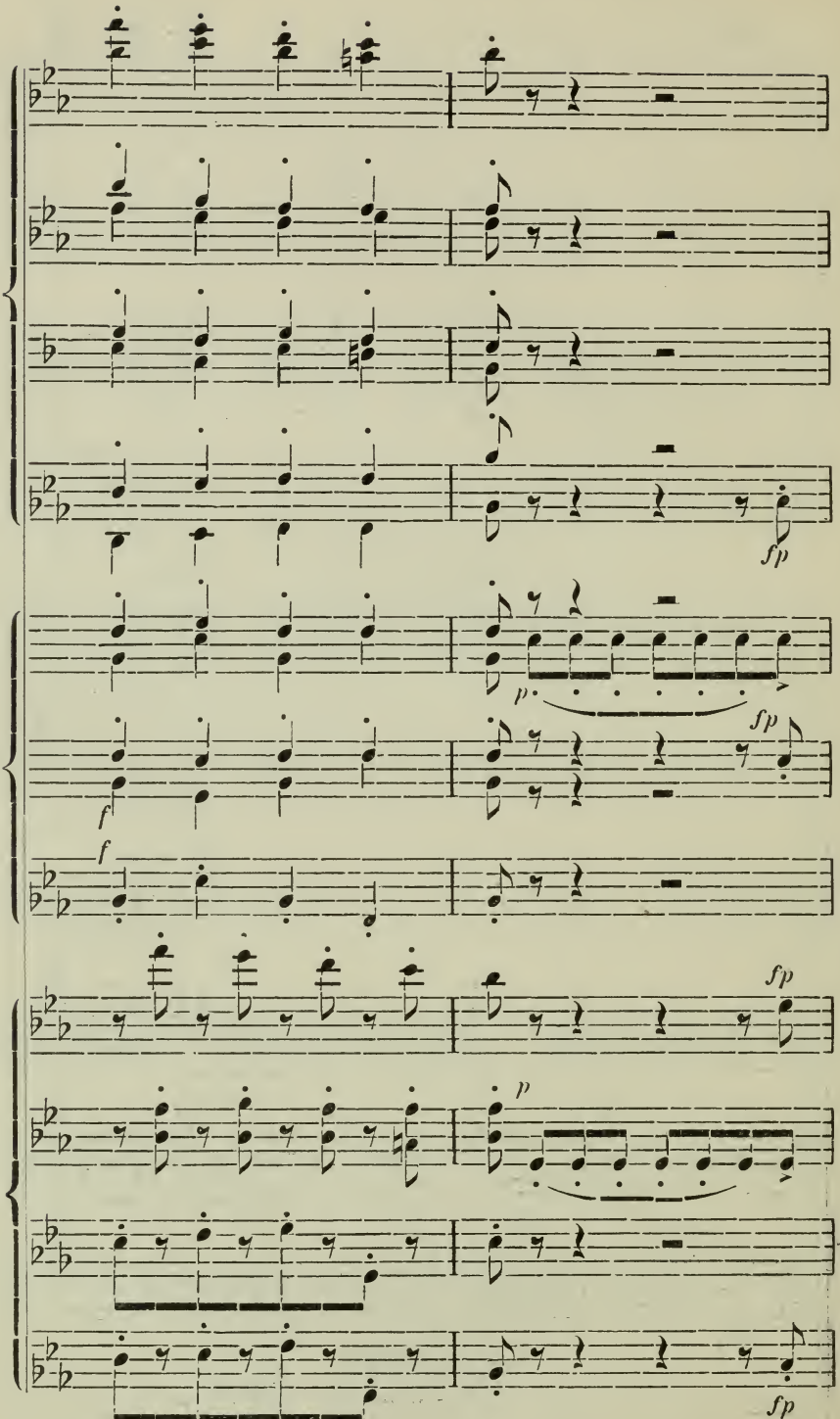

cresc..
tr
cresc.
cresc.
cresc.
cresc.


tr
tr
ff
ff
ff
ff
ff
tr
f
p
ff
dim.
p
ff
dim.
p
ff
dim.
p

For the rest of the first part it will be advisable to keep the orchestra more tightly together and to avoid further individualising of wind instruments. We shall not, indeed, be able to get on without some more gathering together of voices, but we shall be able to manage it in such a way that wind and string instruments will be added simultaneously. We shall, then, not, of course, simply transpose the motive  from lower to higher positions as in the piano composition, but shall let more and more instruments join in with the same motive starting higher and higher, thus bringing about a piling up of voices. This will best be seconded by a gradual addition of lower and lower voices for the strengthening of the constantly repeated *e♭*. The contrary will have to be done in the after-section (Fig. 13, bars 5—8), where the *e♭* will have to be taken up by higher and higher voices. In bars 3—4 a special orchestral effect is suggested by Haydn's piano writing, namely the later entry of one of the two main groups of instruments on the same harmonies. We shall use both possibilities at a short distance, namely bar 3 the later entry of the strings, and bar 9 the later entry of the wind.

13.


sf
mf p
f
mf p
mf p
f
f
mf p
mf > p
cresc. f
p cresc.
p cresc.
mf
f
mf
f
mf
mf
mf


fp
p
fp
f
f
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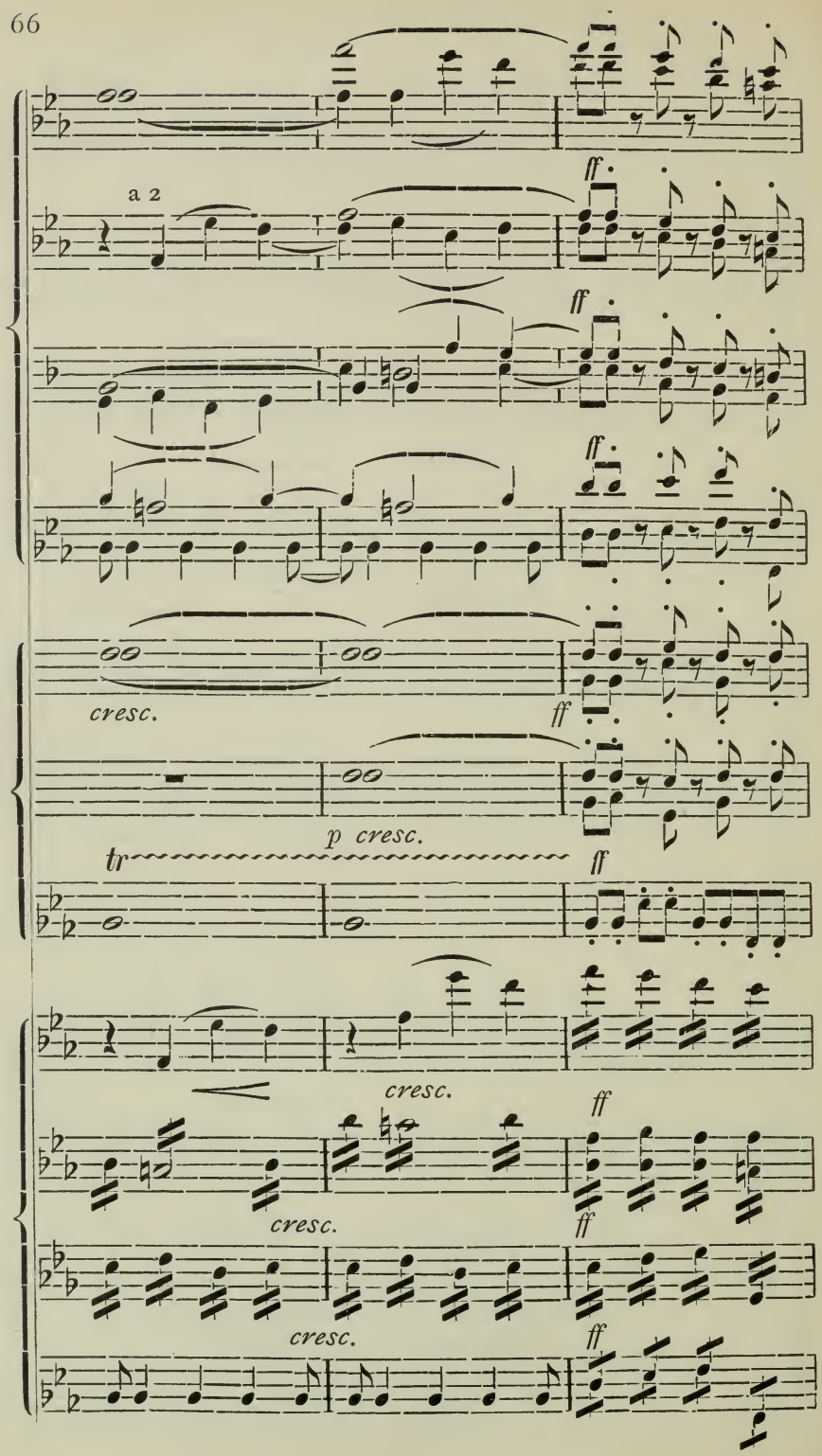
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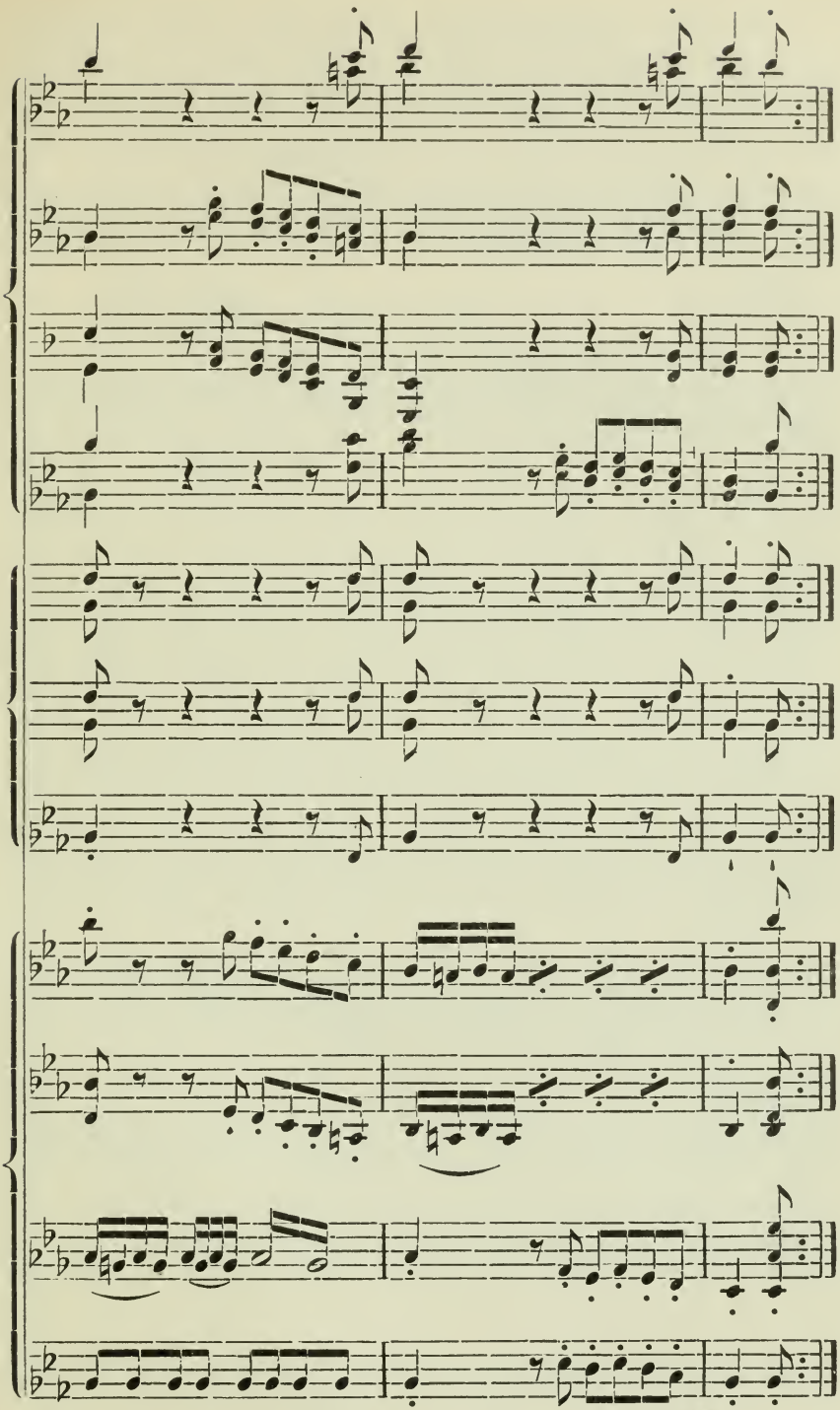
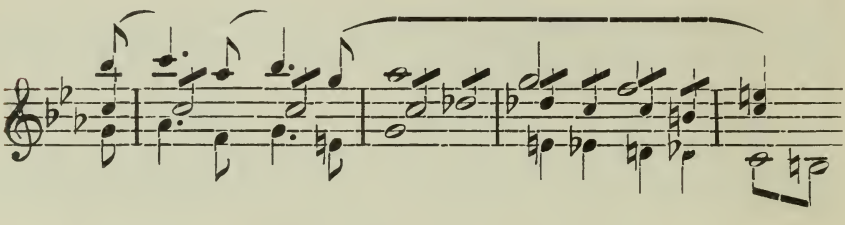
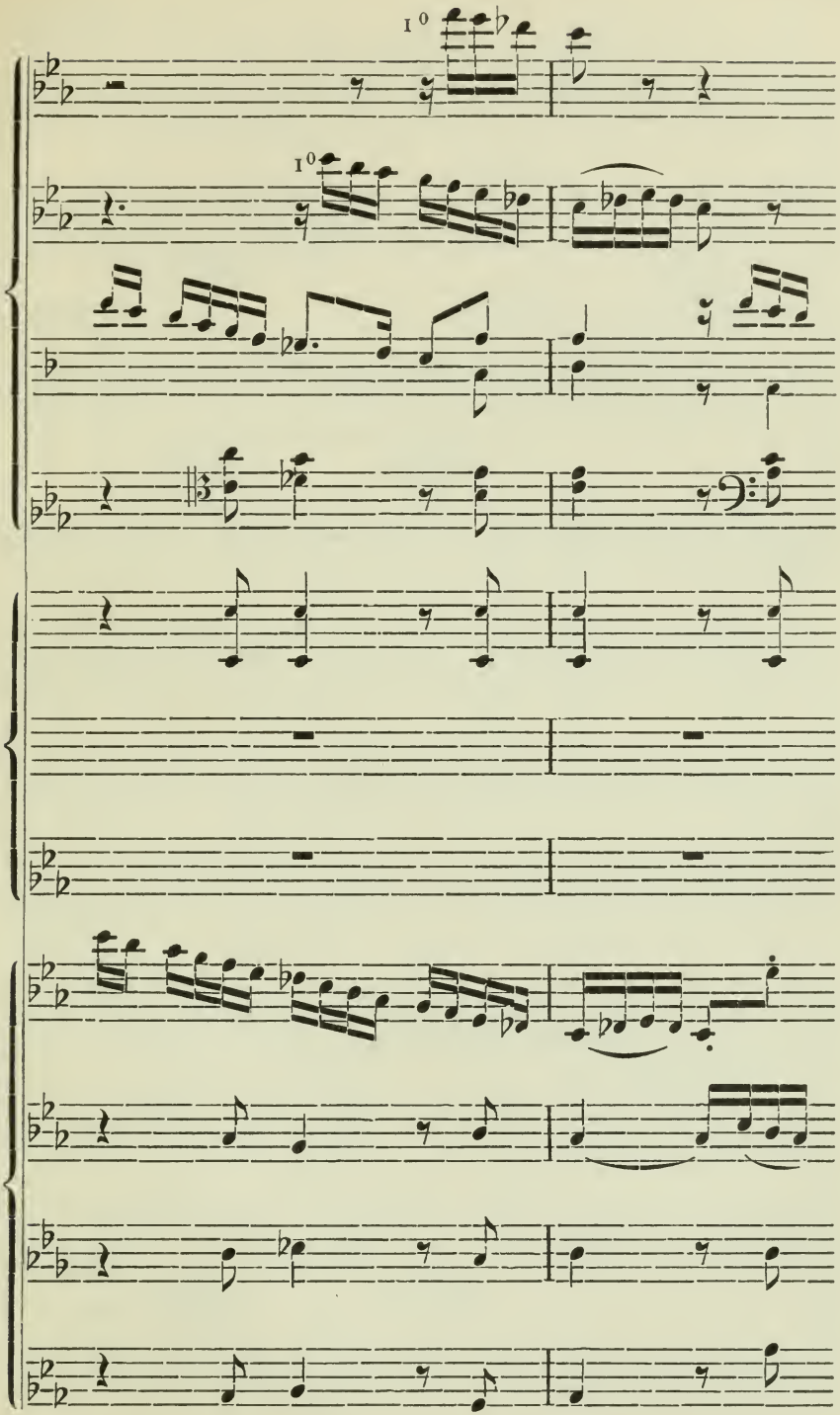


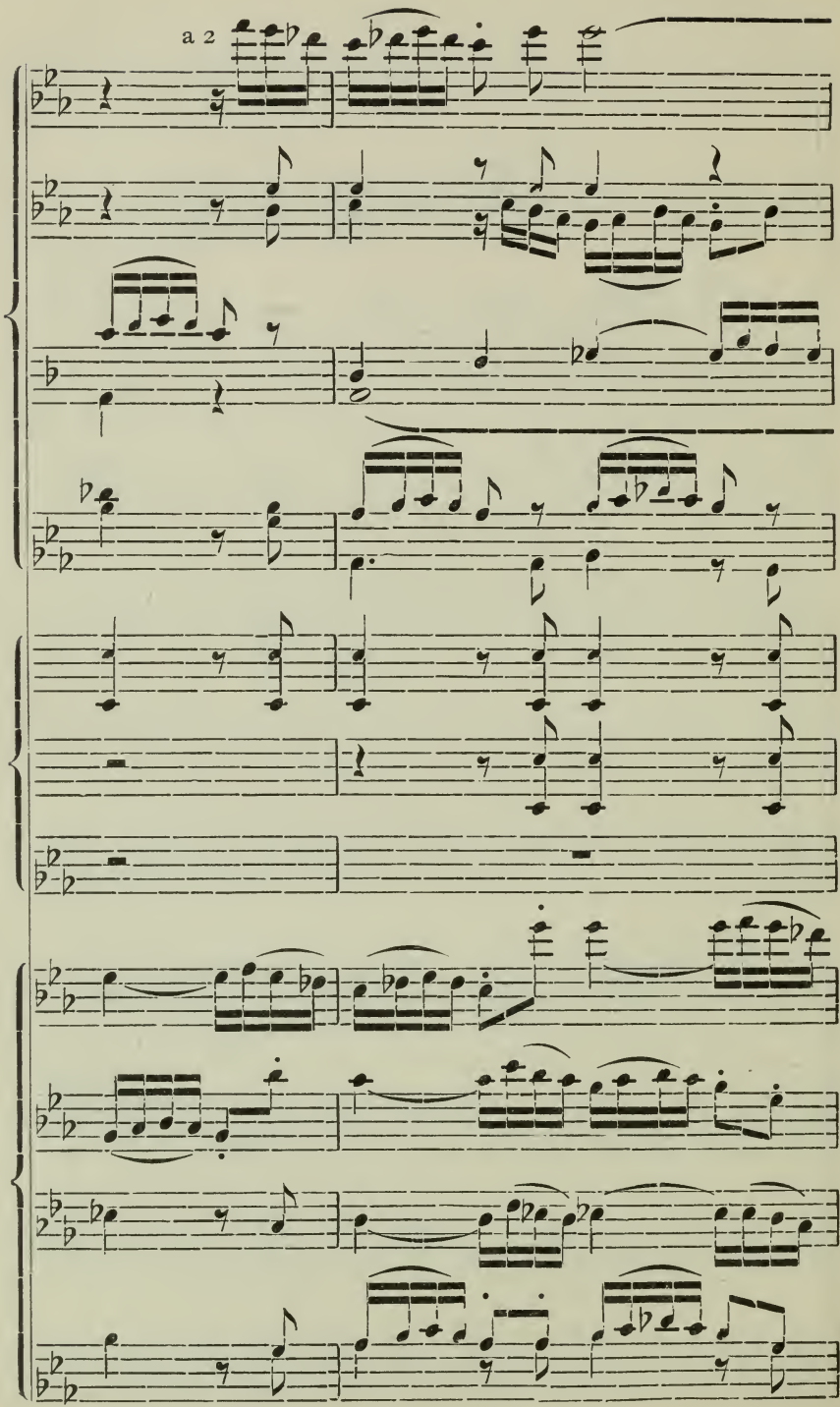
For the development we shall again confine ourselves to a few remarks of a general nature, leaving the working to the pupil, whose interest will have been aroused. The most varied alternation in the choice of instruments will be allowable, at least as far as different motives will thereby remain clearly discernable. It is clear, of course, that connected formations of a sequential or syncopated nature like the following:



must keep the position and instrumentation once chosen. At most they allow an addition or silencing of some instruments. The most difficult part of the task is undoubtedly the extended passage where the right hand has scale-like runs in semiquavers, while the left hand marks the harmonies. We must avoid, above all, giving the melody for eighteen or more bars continuously to, say, the first violin. At least the second violin must participate in spinning the main thread. Further octave-doublings or joining in of wind instruments must be taken into consideration to break the monotony and to gain effective climaxes.

A few bars shall show how that may be done. Intentionally we take the instrumentation rather thick to show what may be made out of the thin piano sketch. If the pupil only remembers that he must work with his imagination, that he must always picture for himself most vividly how the orchestral piece, of which he has the piano sketch before him, must sound, he will not hesitate very much in the choice of his means of expression, but dispose with certainty climaxes and *decrescendi* in accordance with the sound picture he has in his mind.




a 2

tr

If we now survey the results, attained so far, of our attempt to change a movement of a piano sonata into a movement of a symphony, we might arrange them under the following heads.

I. The orchestral apparatus, comprising a multitude of various instruments, commands much *stronger differences of dynamic effects* and a much greater number of *discernible intermediate degrees between the extremes* than even the best modern piano. For that reason a beginner must take great care not to use the whole *tutti forte* for all strong accents. Every little ensemble, even one composed of two or three wood wind instruments, commands a whole scale of different dynamic degrees, and is capable of the increases and decreases required for the true and vivid expression of the melody. On the other hand, it would mean a strong negation of the symphonic character and an aberration into the domain of chamber music, if for a considerable portion of an orchestral work one would be satisfied with such a restriction to a few solo instruments. The proper thing is to keep the presence of a large apparatus vividly before the mind by dividing longer melodies carefully into *sections differentiated by the instrumentation*, whether the melody is really *handed over to other instruments*, or, where that does not seem advisable, *other instruments are made to join it*, thus producing at least a *change of colour*. The best works of the Masters contain, indeed, plenty of examples in which *the first violin keeps the lead constantly*. We must consider this as normal as long as only string instruments are engaged, and thus there is a kind of *homophonic, chorus-like, writing*, in which *the upper part speaks, as it were, in the name of all*. But even a somewhat vivid figuration of the upper part gives it an appearance of solo work, which is not effaced by the fact that in the orchestra a large number of instruments play the first violin part together. In such a case it is desirable that other factors should vie with them in occupying the attention. Thus in climaxes the flute might join in the octave, or the oboe in unison, or the second violin might accompany the first in octaves or thirds or sixths partially or wholly. Even if the lower string instruments, which mark the harmony, at least *participate in the rhythmical movement of the upper part*

by dissolving long notes into tremolo, the solo or concerto-like effect is obviated to some extent.

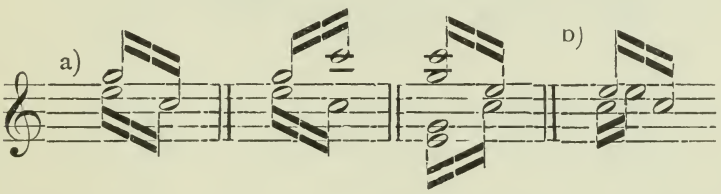
II. Just as reducing a polyphonous orchestral work, or even a string quartet, to a form suitable for piano *solo*, oftentimes necessitates the sacrifice of the rich life of independent middle parts, or at least implies a considerable curtailment of such contrapuntal devices, so, conversely, the transcription for the richly endowed orchestra of a piece written for piano *solo*, opens up an *abundance of possibilities of giving more interesting forms to the accessory matter*, either by adding parallel voices following those of the piano composition in thirds or sixths or alternately in thirds and sixths, or by inventing contrapuntal parts going their own way. We must not, however, overlook the danger of doing too much in this line. But for this very reason the instrumentation of piano compositions by good Masters is an excellent training for the aspiring composer. The very reverence which will prevent him from doing violence to the work of another, from blurring or defacing his original design by painting over too thickly, will bring about an increased power of discernment between natural development, filling in, completion on the one hand, and radical transformation, over-decorating, overlaying on the other hand. If anyone is working out a sketch of his own invention, there can be no disputing his right of making out of it whatever he wishes. But it is desirable that he should constantly keep clearly before his mind what he really intends, lest *against his will, by an excess of filling and contrasting parts, his own ideas may change into something quite different.* As a general rule it may be laid down that the stronger the instrumentation, the simpler must be the part-writing, if it is to remain lucid. For that reason *the structure of a string quartet, quintet, etc. is on the average considerably more complicated than that of a piece for full orchestra.*

III. Everything that in the quartet style, as well as in the miniature piano style, is blamed as "too orchestral," is, naturally, quite in its place when we have to deal with the orchestra. Such a device, to be approved only in the orchestral style, is, for instance, the *tremolo* of chords. I have shown, in the Catechism of Playing from Score, that it takes different forms on the piano from those of the string instruments. For the latter it is used generally

in the shape of strongly repeated notes, or double-stoppings:

It is understood that chords of three notes (on three strings simultaneously) cannot be rendered *tremolo* on modern string instruments with their strongly curved bridges. Formerly, something written as at (*a*) was meant as a repeated arpeggio (b). This, however, cannot be recognized as truly orchestral. It has decidedly the effect of a *virtuoso solo,* and its proper place is in the *Concerto.*

On wind instruments a real *tremolo* is quite impossible. Only a quick alternation of two notes can take its place. When several wind instruments work together, formations similar to those the piano substitutes for the string *tremolo,* are possible:



Such figures are, of course, quite feasible for strings instruments also. But they differ much more than the piano *tremolo* from the string *tremolo* produced by continual change of bowing. The repeated articulation which the change of bowing gives to each new tone, introduces into the tone effect something vehemently excited, which

may indeed be represented by the repeated strokes of the hammers of the piano even in the kind of *tremolo* mentioned above, but finds no substitute in the repeated change of notes under the same bow, and still less in such figures on wind instruments, on which the change of pitch does not interfere with the continuity of the breath. The form at (*b*), therefore, comes very near to a real continuous sounding of the two tones $\binom{e}{c}$, and is distinguished from it merely by the fact that the semiquaver motion is still recognisable.

Arpeggios running through one or several octaves, which are so common in piano writing:

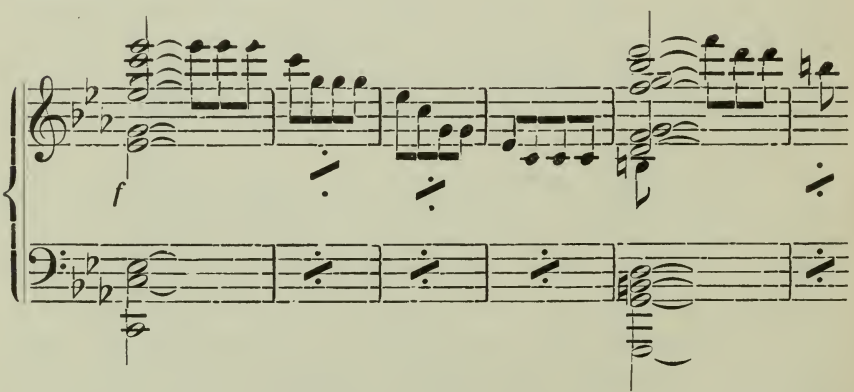
must be looked upon as distinctive piano features, and be replaced, in orchestral writing, by altogether different methods. Here invention has free play; only the limits above and below and the rhythmical movement (semiquavers, sextuplets etc.) must be retained. For instance:

Under all circumstances anything in the Concerto or virtuoso style must be avoided. Figures for wind instruments like those in Fig. 12, bars 12—13, are, indeed, quite possible with good effect, and have been written frequently in modern times. But great caution is required in writing them, and, above all—if one wishes to write in symphonic style—care must be taken not to give the like to a single instrument.

IV. A main point of view for all exercises in instrumentation is the possibility of having *tones sustained while other parts move through them.* Through piano music we have been accustomed to understand tones repeated or touched in arpeggio figures as sustained ones. In the orchestra this is impossible. Inexorably all interruptions of sound are clearly audible, and every tone sounds only as long as the notation requires it. Here, as a rule, the beginner in instrumentation experiences the most severe disappointments, when a tone which he had

still in his ear, vanishes without a trace as soon as it is left. But just as little as there would be any meaning in demanding for the piano by strict notation all these prolongations of tones produced by *legatissimo* and use of the pedal, just as necessary it is in orchestral compositions to write accurately what one wishes to hear. The first movement of Beethoven's *C* minor Symphony is a most instructive illustration of this doctrine. The melodic thread of the theme passes from instrument to instrument, but each instrument, as the melody passes from it, does not, with rests, retire from the scene, but remains there marking the harmony:

Compare also the wood wind and horns continually sustaining chords for four bars, while the first violins sweep down through them:



V. Prodigality in the use of resources naturally leads to a wearing out of their efficacy. It is of primary im-

portance, therefore, to economize, and to dispose contrasts and climaxes with full consideration. The *relativity of dynamic effects* already pointed out (see above under I) makes it quite impossible in arranging a piano composition for orchestra simply to follow the indications of the composer *(p, f, mf etc.)* and to pre-arrange certain combinations of instruments for the various degrees of this dynamic scale. We must rather determine first, from wide and general considerations, which *larger parts of a movement* demand a *tutti*, and which, on the contrary, point, by their more intimate character, to a more discreet treatment. In *Allegro* movements, especially of the Sonata form, as a rule the *first theme* represents the masculine principle and, accordingly either enters at once with the full *forte* of the whole orchestra, or at least, starting from a medium combination, soon reaches a climax in the *tutti forte*. The *second theme*, then, as a feminine element, enters more gently and delicately, but, in its appendages, as a rule, rises again to the character of the first theme, so that, generally, even before the development the full instrumentation is required twice. This, however, does not exhaust the possibilities of changes in the dynamic relations of the thematic part. The modern style (since the epoch of Haydn) inserts not rarely *contrasting, lyrical moments of short duration* into the strong first theme. These are doubly striking in such surroundings. Naturally a particularly strong effect will result, when from the noisy *tutti* a few single instruments emerge, as, for instance, in the beginning of Beethoven's 8th Symphony, when after four bars *forte tutti*, the quartet of two clarinets and two bassoons play a *p. dolce* passage, or similarly, at the opening of the Fidelio Overture, when after four bars *Allegro tutti forte* two horns intone their touching complaint. In *Introductions* to *Allegro* movements, as written especially by Haydn and Beethoven, the abrupt change of the instrumentation even serves as a reliable means to prevent the effect of true thematic development, and, therefore, really to *introduce*, that is cause a strong expectation, suspense, until at last the *principal theme* announces itself clearly by means of an *instrumentation remaining constant for a considerable time.* Although such *constancy of instrumentation* as a rule affects only the kernel of such passages, and the effect is

not interfered with by the occasional accession or retirement of some wind instruments, still it must be observed as a general principle that such larger lines of equal colour are characteristic of the thematic structure proper, and that the breaking up into small fragments has its best place in transition and development portions.

The Haydn *E* flat major movement we have had in hand, which, indeed is not an opening movement of the grand style, but rather a finale of humourous bent, runs some risk of falling asunder into small fragments. On account of the limited space of a catechism it was not feasible to work out *in extenso* a composition with grander outlines that would allow, or demand, the same instrumentation for longer stretches. If the pupil compares our work with larger symphonies or overtures, as for instance those of Beethoven, he will see at once that a necessary condition for such keeping to simple long-stretched lines is conception on a grand scale.

If the aspiring composer has ideas that take a higher flight, he will himself feel the clear need for giving them the suitable instrumental garment, and dispose, with conscious artistic will, either variegated change of colour or broad painting of long stretches in the same colour. The exercises in instrumentation for which we can here give directions, have for their purpose merely to make him familiar with the means of colouring and the mixing of colours. They are, therefore, of a purely preparatory nature, comparable, say, to the aspiring painter's exercises in copying. In these, indeed, the creative activity of the imagination comes still less into play than in our exercises, in which, at all events, the widening and enriching of the tone picture plays an important part. Still the instrumentation, in imitation of the manner of the classics, of a piano movement conceived in orchestral fashion, is certainly the true analogue of such copying studies of the painters. The mere copying of a score is, like the playing or reading of it, or the listening to a performance, comparable only to the attentive looking at the picture. Such instrumentation, however, is in reality an attempt to imitate the colouring of the Masters, to acquire their technique. This does not imply shutting oneself off from more modern methods of instrumentation, as I have remarked already. I must only emphasize again that in this way

one will acquire the normal, foundational way of disposing the resources of the orchestra. From this the orchestral treatment of the Romanticists and their followers, which goes more into the detail of individualistic shades of expression, will develop naturally as soon as we apply the views pointed out in the next chapter.

Chapter III.

THE ROMANTIC IDEAL.

While the principle of instrumentation adopted by the classics may be characterised as a real *levelling of the tone colours* and as a strict *avoiding of concerto-like prominence of single instruments*, an altogether opposite principle made its way in the 19th century, especially since Karl Maria von Weber, namely that of seeking out the *special effects of the tone colours of the individual instruments* and making intentional use of them. Even particularly bad tones and poor registers of certain wind instruments now gain special value and receive particular attention, as, for instance, the stopped tones of horns sounding like a choked voice, the lowest tones of flutes and clarinets sounding hollow and dull, etc. While the classics, as a rule, cover such defects by adjoining string instruments, they are now made to stand out openly, in order to attain special effects and call up definite associations. It should be well noted that this new principle grows on the soil of *opera music*, being carried out in a striking manner for the first time in Weber's *Freischütz*, though, indeed, it finds its way quickly into pure instrumental music.

A few cases of conscious use of the characteristic quality of tone colours can be found long before the time of the Romantics (with Gluck, and even with Monteverde). Again it was natural that the more subjective, more cordial nature of the modern style, since the middle

of the 18th century, should lead insensibly to a closer observation of the very peculiar expressional value attaching, for instance, to long drawn horn tones, or the *diminuendo* of simple violin tones, or the swell of clarinet or oboe, etc. The whole literature of classic symphony is interspersed with such singular effects, to which, as it were, the composers listen charmed by their beauty and delighted by having discovered them. Still, with the Classics, a more general musical compensation remains the rule; their creative imagination conceives as the main thing the melodic outline and the harmonic and dynamic light and shade, while the instrumental colouring is more a natural result than a specially intended effect. Even when with Beethoven a melodic motive passes from flutes to oboes, clarinets, horns, bassoons, etc., the peculiar change of different shades of expression is not so much sought for, as resulting accidentally from the passing through different ranges of pitch.

But from what had been found accidentally there was only one step to intentional choice and deliberate search. Although they are more or less stereotyped, the episodes of trios, or even duos or quartets, replacing for a short time the *tutti* in the overtures and symphonies of the time before Haydn, are really the first beginnings of a conscious employment of the contrast of tone colours. The horn trio in the Scherzo of Beethoven's *Eroica* has its roots certainly in this older practice, but, towards the end, in the striking, seizing *diminuendo* effects, it develops into a real melting in the horn sound:

The sudden stopping of the movement, the ceasing of proper thematic formation, which gives way, as it were, to a visionary listening to the transporting sounds to which the preceding development has lead, is quite characteristic of the change of standpoint of the composer in reference to instrumentation. Here colour is not any longer a means to an end, but the end itself. Here even Beethoven is a real colourist. Also the first movement of the *Eroica* contains several such moments where the colouristic element breaks through with irresistible force, namely the changes between wood wind and strings marked by a similar, though not so extensive, stopping of the movement, and intensified by dynamic effects (*crescendo* supported by a gradual increase of the number of the participating instruments):

and:

Here, indeed, there is question not of the colour of different wind instruments, but of the difference between the colour of the wind instruments and that of the strings. If we would attempt to explain this difference in words, we might say that the expression of the wind instruments, on account of the breath flowing out, appears more like speaking, like *free utterance*, that of the strings, more like a reflection of the innermost feeling, as a mere inward gazing, divining, thinking. I would ask that a great deal of weight be attached to this attempt at expressing in words something that is extremely difficult to define. The attempt at all events gives something like a key to the usual order of entry of the instruments in gradations from the *piano* of the strings to the *forte-tutti*, in which at last the heralds and high priests of the orchestra, the trumpets and trombones, do not speak, but, with a powerful voice, *proclaim*. The facts that a quartet of wind instruments can never be raised to that degree of refinement of texture which distinguishes the string quartet and assigns to its literature the first place in the aesthetic estimation; that trumpet melodies sound so easily quite

vulgar and obtrusive, when they are not made legitimate as proclamations in the way alluded to; that generally effects of wind instruments easily become unintentionally comic and frequently disappoint the composer most unpleasantly by bleating, cackling, grunting, bawling etc.— all these are testimonies to their lesser qualification for interpreting the most secret and intimate emotions of the soul. And yet, who would do without these means of raising the quiet sentiment to hearty, open speech?

The fact that an extended solo for wind instruments is unsymphonic, while the first violins may lead for a considerable time without bad effect, receives, if not a full explanation, at least some valuable side-lights from what we have just said. But if, as can be observed easily, the Romantics have hesitated less and less to let single wind instruments stand out prominently, a few words of explanation are still needed, not so much to justify their innovation, namely the abandonment of the established principle of classic instrumentation, as to prevent an undervaluing of the older principle, which undervaluing, while not justified, yet takes place only too easily. Above all we must avoid the error of considering the modern multiplication of means of expression, the stronger working of colouristic resources, as progress in every respect. Even the examples of colour effect of wind instruments given above point to the danger entailed by colourism: *the neglect of design for the sake of colour.* Although, not only in these examples of Beethoven's, but also in numberless others, such momentary lingering on the colour effect is free from any objection, still it is easy to understand and to prove by examples that the composer, in making more extensive use of this principle, has the ground swept from under his feet.

But it is not the colouring alone that the romantic ideal seeks to place instead of the plastic formation of the Classics and to establish as a principle, but also the fuller exploitation of dynamic and pitch effects, comparable to the light and shade of painting, and, generally, a one-sided preference in the use of the *elementary factors of musical effect* to the neglect of the formgiving principles. We must, in this connection, touch on some aesthetic matters, but lest they should occupy too much space, I must refer the reader for a fuller explanation

to my "Catechism of Musical Aesthetics" (Augener Ltd.), and „Elemente der musikalischen Aesthetik" (Stuttgart, Spemann).

Elementary factors of musical expression are those that affect the senses: the rising and falling of pitch, the growing and diminishing of strength of tone, the increasing and decreasing of the speed with which these changes take place; and further the various qualities, tone colours, of different instruments and the specific effects of high and low, strong and weak.

On the other hand we have as formative factors Harmony and Rhythm. In plain melody as well as in homophonic or polyphonic part-music, the elementary factors are invariably in combination with the formative ones. But the classic ideal gives more attention to the latter, the romantic, to the former.

By concentrating the interest on the formal in music (key, time, thematic formation and development) the elementary factors are placed in the background, and appear rather as accessories. We need scarcely point out that, naturally, a large number of colouristic and dynamic means placed at one's command, favours a departure from strictly formal structure, and that, on the other hand, the *ensembles poorest in colour lead most forcibly to artistic development of the design.* This is the reason why in the string quartet, and in chamber music generally, the formal element has remained, and must remain, prominent, and why programme music repressing the formal strives after the greatest increase of the instrumental apparatus, which it wants for the heightening of dynamic and colouristic effects.

The intended purpose of producing, by musical means, certain effects, of awakening definite associations, naturally leads to very distinctive methods of orchestration and of musical formation generally. On the piano, as a solo instrument, the development of the colouristic principle, on account of a very limited supply of different colours, is very much restricted, and hence the attempts at programme music are more rare and certainly less harmful, and not very dangerous for the art as a whole. The playing with the *effects of high and low*, the exploitation of *rhythmical means* for a forcible direction of the imagination, are, indeed, effective stimulants, but they

cannot make up for the inner logic of thematic formation. They may, however, occasionally, like the examples of revelling in tone colour quoted above from Beethoven, cause a stopping of the development for the purpose of dwelling on the tone picture which in itself occupies the interest sufficiently. Modern piano music, since Chopin and Liszt, is rich in such effects where the growing of the musical idea proper is momentarily interrupted. We wish to lay stress on the fact that such effects represent an artistic means of great aesthetic value. But we must point out also that *by themselves* they cannot produce unobjectionable works of art. The same means, of course, are at the disposal of the orchestra and in it, combined with its rich possibilities of true colour, gain, if properly disposed, considerably in intensity.

It is not the object of the present chapter to point out by examples all the kinds of combinations of colours or special effects of single colours that have been used or are possible—a voluminous handbook of orchestration would not be equal to such a task, much less a sketch like the present Catechism. But we shall try to give the pupil a general understanding of the means of characterisation, so that in writing out, for the orchestra, effects of pitch, dynamics, or rhythm, conceived in a general musical way, he will be quick to select those instruments which will best produce the intended characteristic effect.

There is scarcely any doubt that the whole art of instrumental tone-painting and characterisation has its origin in instrumental accompaniment of singing. Hence the attentive study of simple cases of illustrating words to be sung, by the form of the accompaniment, is the most natural way to acquire a sure feeling for the characteristic use of instruments. In this way especially the study of the operatic scores of Gluck, Weber, Meyerbeer, and Wagner, and also that of sacred and secular choral works, beginning with Haydn's "Creation" and "Seasons," is extremely instructive.

We may distinguish, first of all, two kinds of means for tone painting; first, those that imitate noises, in other words, replace something audible but not musical by something musically idealised (thunder, wind, beating of the waves, rustling of the leaves, galopping of a horse, etc.); secondly, those that imitate something audible and musical,

(horn calls [hunting], trumpet flourishes [war, solemn procession], solemn trombone or organ harmonies [worship], shepherd's pipe [rural scenery], bell ringing [evening, Sunday, going to church], and also singing of birds [forest, spring]). In a third category we may place those cases in which not the melody of an audible process, but rather the *form of movement of a visual process* is imitated musically. Here the ear is made to take the place of the eye in order to excite the imagination in a certain direction (up and down suggested by the rising and falling of the melody, circular movements of the mill wheel or spinning wheel, the falling of snow flakes, lightning, the rolling of the waves, the rhythm of rowing etc.). Also the representations of brightening (sunrise) by gradually rising pitch and increasing strength *(crescendo)*, and of darkening (evening) by falling pitch and *diminuendo* belong to this category.

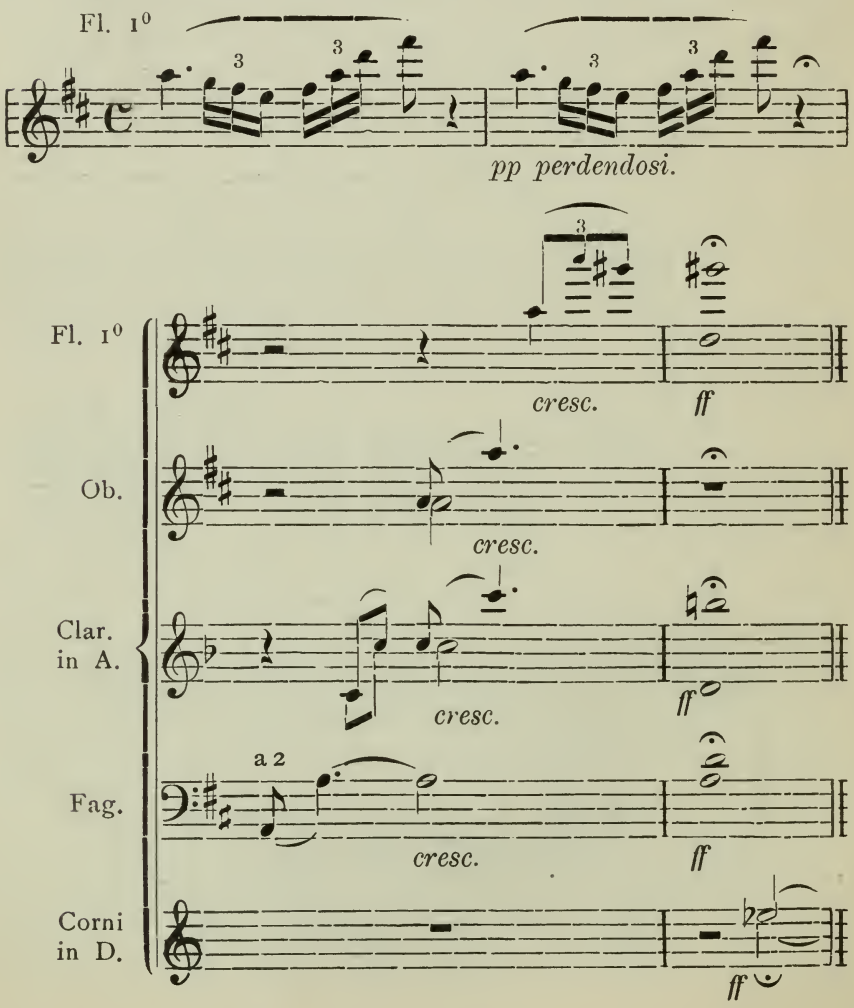
A fourth category is rather different from all the preceding in as much as it imitates, not something of the external world, but the *dynamic forms of sensation processes* (stopping of movement for fear or fright, sudden increase of speed for joy, jubilation, etc). This category comes nearer to absolute music, which merely utters our own feelings without any reflection. But the illustrative tendency of this class becomes plain from its connection with the words.

All these manifold uses of musical means of expression for the purpose of calling forth or at least intensifying and making vivid certain chains of thought, will, however, accomplish their object more perfectly or fail completely, according as the proper instruments are selected or not. A valuable point of view here is the distinction made above between wind instruments as speaking or proclaiming agents, and the strings that are almost alone qualified for the expression of quiet meditation. Again the flowing breath of blown tones makes them particularly suited for the representation of the vigorous life of nature.

A very instructive employment of the wind instruments is shown in Mendelssohn's Overture „Meeresstille und glückliche Fahrt," a piece of true, unobjectionable programme music inspired by Goethe's poem on the same subject. The whole introduction *(Adagio)*, which is

devoted to the description of the calm of the sea, contains not a single high tone of the wind instruments. Leaden weight attaches to the strings rising and falling in slow succession, appearing almost like a mere remembrance of the movement the ocean waves used to have. Isolated low wind tones (bassoons in the great octave, clarinets in the small octave, flutes in the once-accented octave) appear like a negation of the strong life that pulsates in the higher positions of these instruments, and emphasize the absence of movement by not participating in the slow rises of the violins, but showing mainly descending steps. Only towards the end of the introduction the two bassoons join the basses (celli and viole) to enlarge a broad wave that seems to move slowly from the bottom of the sea to the surface, while the violins remaining stationary in *pp* through eight bars on d^2 and d^3, leave no doubt that above in the air no trace of movement is to be felt:

When even the last remnants of movement have come to rest, the mood suddenly changes. Over the *A* kept steady by the celli, the first flute announces a gentle stir in the upper air, which quickly grows stronger and fills the sails, gathering in octave skips the wood wind between *A* and a^3, *cresc.* to *ff* on the *a b d f g♯* with 𝄐. Sudden blasts of wind are represented, with tangible distinctness, by syncopations, and the pennants fluttering gaily are unmistakable in the crotchet triplets increasing to quaver movement. For a long stretch the wood wind (together with the horns), remain the representatives of the fresh sea breeze, while the entry of the strings evidently portrays the resumed motion of the ship.



Molto Allegro.
p
3
p
3
p
3
p

p
cresc.
cresc.
etc.
cresc.

Here again we can observe how the composer, in order to allow tone colours to produce their effect, lets the musical development stagnate. This stagnation is, to a certain degree, a necessity, if the specific effect of the colouring is really to be attained. But, as I have emphasized already, there is danger in this. Only too easily the musical unity and logic of the texture might be replaced by a series of colour effects of which each requires to be perceived by itself and has no necessary connection with the others. A strict aesthetic criticism can approve of only such tone pictures which, even without the show of colour, as a mere design, for instance in the shape of a piano score, can produce artistic interest.

These remarks are not, strictly speaking, wanted here, as they refer to composition and not to instrumentation. But we can deduce from them the rule that under certain circumstances the filling up of a sketch in rich colours may make a broader working out of certain passages desirable. If we may have some hesitation in doing this while orchestrating a piano composition or a sketch originating with some one else, all objection ceases, of course, when we deal with a sketch of our own. The danger of losing oneself in meaningless playing with colours is obviated by the sketch conceived in a general musical way; and no objection can be raised against making full use of colour effects brought about by logical musical development, provided that after a reasonable dwelling on them the logical formation resumes its normal course.

If we consider, for a moment, how instrumentation will shape itself in the service of delineating nature, that is as musical landscape painting, we find quite a number of important relations between the various moods to be represented and, on the other hand, the quality, power, and agility of the various instruments. When the uproarious turmoil of the elements in hurricane or thunder storm are to be represented, naturally the whole orchestra will be laid under contribution. The most shrill top notes of the wood wind, the full clang and crash of the *fortissimo* of the brass, piercing gong beats and deafening drum rolls scarcely seem sufficient to the composer to represent the powers of nature adequately. Countless are the attempts made to portray in a tone picture a "Thunder

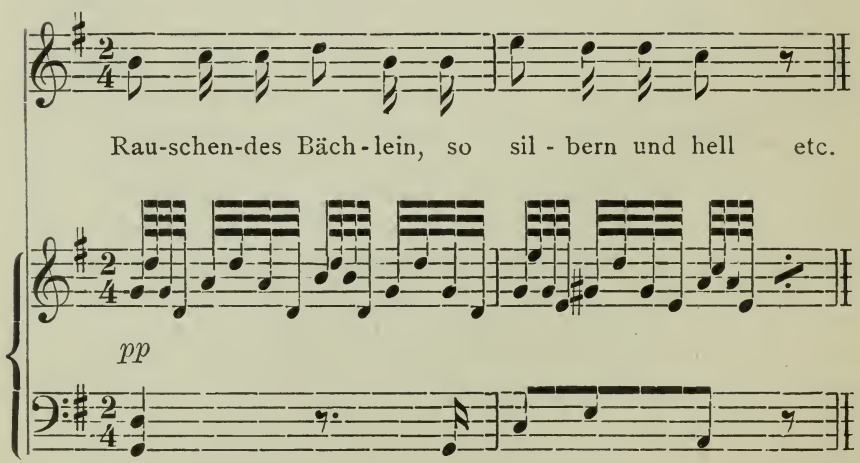
Storm," a "Storm at Sea" and similar things, and the continual tendency to enlarge the orchestra by increasing the number of just the most powerful instruments is certainly to be accounted for, to a large extent, by the desire to accomplish such tasks. Each new generation looks down with a smile on the tame, childish attempts of the earlier period, and imagines that it has surpassed them enormously, without, however, recognising how far even the most recent attempts fall short of the reality.

A word of warning is here well in its place. The more we allow idealising to be supplanted by the attempt at real imitation, the more the impossibility of the latter must appear. The actually inartistic noise, which leaves no room for interest in the musical formation proper, can merely have the effect of an impotent attempt, and is nothing but childish play of very little aesthetic value. Justly, therefore, all efforts to reproduce wild noise by noisy music, stand rather low in the general estimation. For everything else, even for the greatest heightening of the expression of subjective feeling, the full *Tutti fortissimo* of the orchestra shows itself more natural and effective, than for the mere crude imitation of real noise. The first guiding principle, therefore, for all painting of nature must be conscious idealisation. Otherwise it would be best to introduce at once the thunder and rain machines not unknown among stage apparatus.

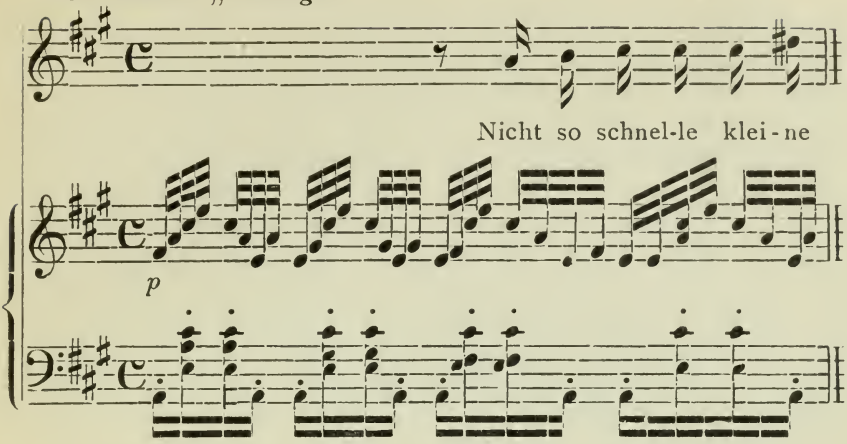
For landscape painting of a more gentle mood bare imitation of nature is quite out of the question. The imitation of the monotonous murmuring of a stream or of the rustling of the leaves has never been attempted in a naturalistic fashion. For even a tremolo of strings remaining stationary on one tone, or the flowing breath of a sustained wood wind tone is, on account of the constancy of pitch, an imitation strongly idealised. But the number of possible free imitations is unlimited. The effect is certain if a lively form of figuration maintains the illusion of continued movement, and a certain constancy of pitch, allowing of slight modifications, can be perceived. A further necessary condition, of course, is a degree of strength of tone not exceeding the medium. I recall only a few examples:

Schubert: „Der Jüngling an der Quelle."

Schubert: „Liebesbotschaft."



Schumann: „Aufträge."

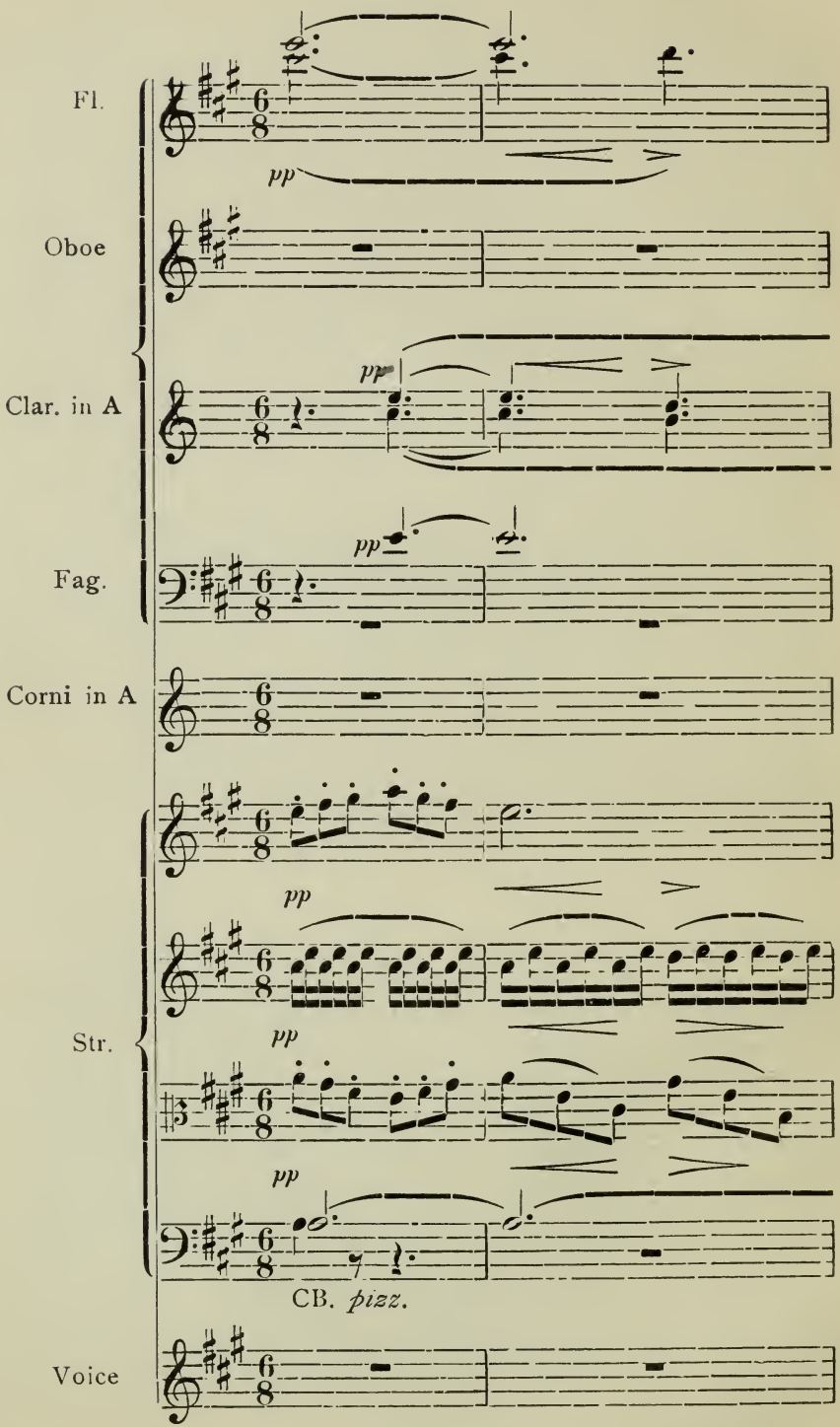


The actual pitch of the figure is by no means indifferent in such simple tone paintings. The three examples given move within the once-accented octave, touching on the twice-accented octave, a range which must be regarded as medium. If it is raised considerably, the streamlet murmuring, or the breeze rustling, in bright daylight, are easily changed into the glimmer of the heated summer air or the whizzing of the insects. If it is lowered considerably, we get at least dark forest shade or real evening dusk. Thus in R. Franz' "Nachtlied," op. 28, III, the accompaniment is a little too high to produce at once evening mood:

But as the voice part begins very low and even starts before the accompaniment, the effect is neutralised, and for the sequel: „Da schläft in holdem Prangen die müde Erde ein" ("Then in her gentle beauty falls weary earth asleep") the possibility of lowering the pitch is gained. The "Scene at the Brook" in Beethoven's Pastoral Symphony is, by the rather low position of the strings that picture the movement of the brook, cleary placed in a forest. The quaver movement of the first four bars shows that it is not a mere streamlet running over the gravel, but quite a large brook, and the celli accompanying the second violin and viola in the lower octave seem to indicate that something like green boughs are bending down close to its surface.

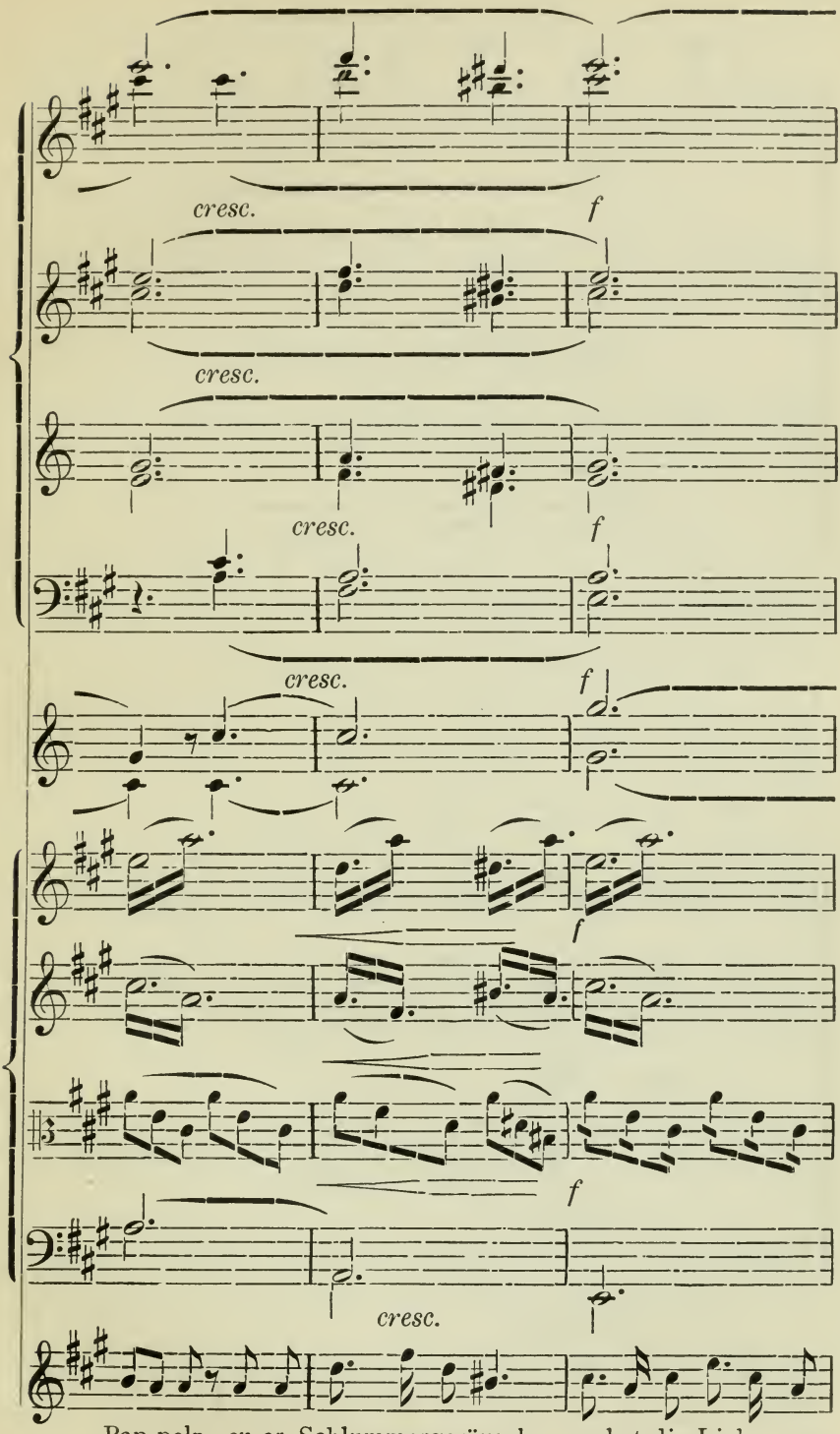
We must now ask the question whether in an instrumentation of the piano-examples given above the choice of the instruments would modify the effect materially, or whether the form of movement and the range of pitch by themselves are sufficient to secure the desired impression. To a certain degree the latter question may be answered in the affirmative. Still there is no doubt that a happy choice of the instruments can intensify the illusion considerably. After the preliminary exercises which we have gone through, we consider it as out of the question to give such figures as those in Schumann's „Aufträge" and Schubert's „Liebesbotschaft," as they stand, to the clarinets or oboes. Abstracting altogether from the resulting virtuoso character which would turn the

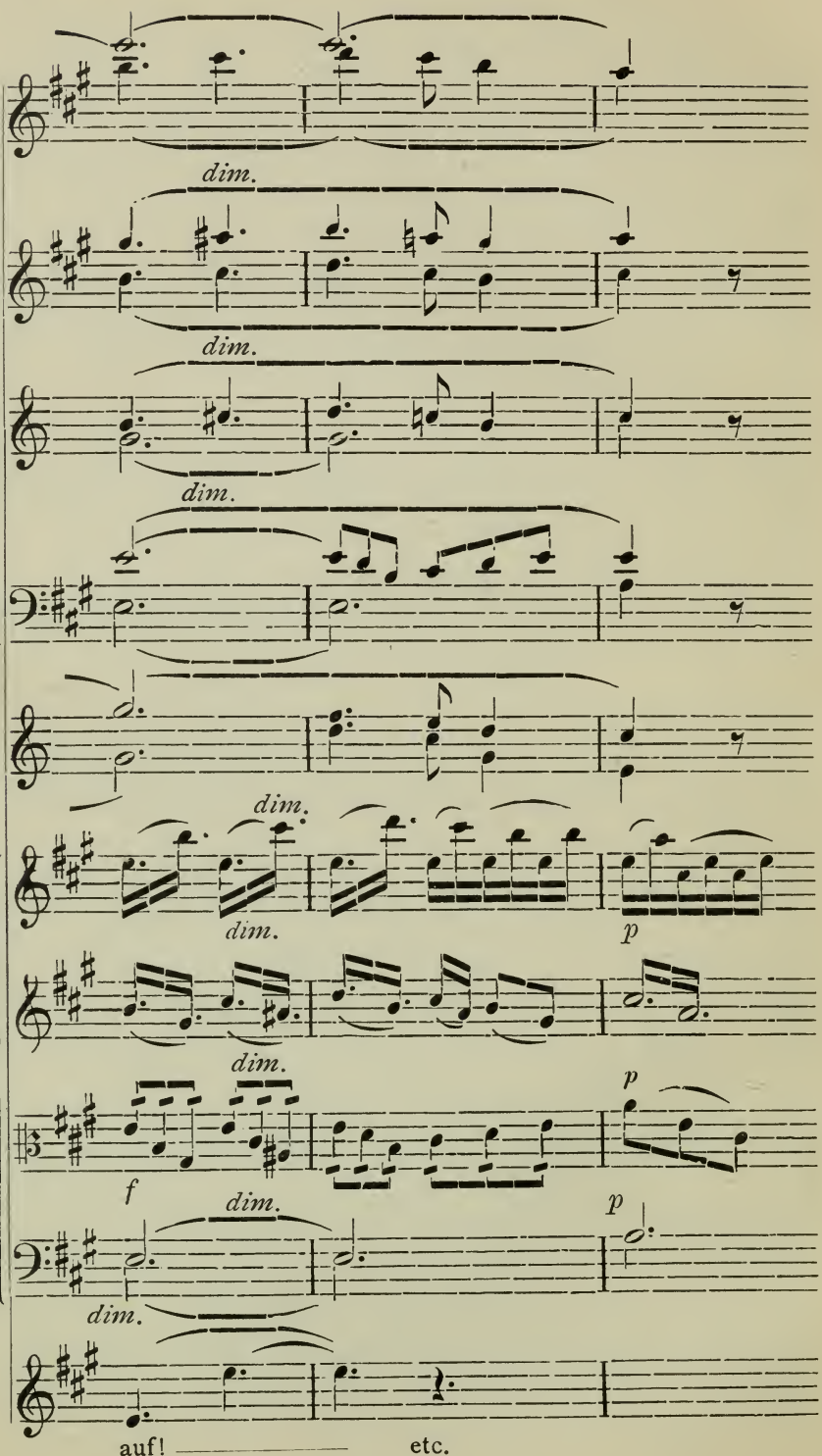
piece into a study for the instrument in question, the effect would by no means correspond to the intention, but a disagreable gurgling and gushing would be the result. Instead of moving visibly rather than audibly, the brooklet would appear to make considerable noise. Even the *tremolo* thirds of the first example („Der Jüngling an der Quelle") would, if in a less degree, awaken a similar idea, and at most one could entrust such a figure with impunity to the weak-sounded and agile flute. It is clear, therefore, that the strings are wanted. But these, too, would replace the piano figuration by figurations suitable to themselves, just as was done in cases discussed above, where tone painting was not intended. Here again all we have to keep in view is to retain the melodic outline, the form of movement of the figurations (sixteenths, thirtyseconds) and the colour produced by the pitch selected; the last, however, may be treated with a certain liberty as far as octave doubling and inversion are concerned. But with this changed distribution of the elements there is no objection to letting the wood wind join, if they can give more freshness to the picture. The opening of the song, then, might look thus:


Fl.
pp
Oboe
Clar. in A
pp
Fag.
pp
Corni in A
Str.
pp
pp
pp
CB. pizz.
Voice

pp
p
pp
pp
pp

pp
pp
pp
pp
pp arco.
Lei-se rie - seln-der Quell, ihr wal-lenden, flispernden


cresc.
f
cresc.
cresc.
f
cresc.
f
f
f
cresc.
Pap-peln, eu-er Schlummergeräusch wecket die Liebe nur


dim.
dim.
dim.
dim.
dim.
dim.
p
dim.
p
f
dim.
p
dim.
auf! ——— etc.

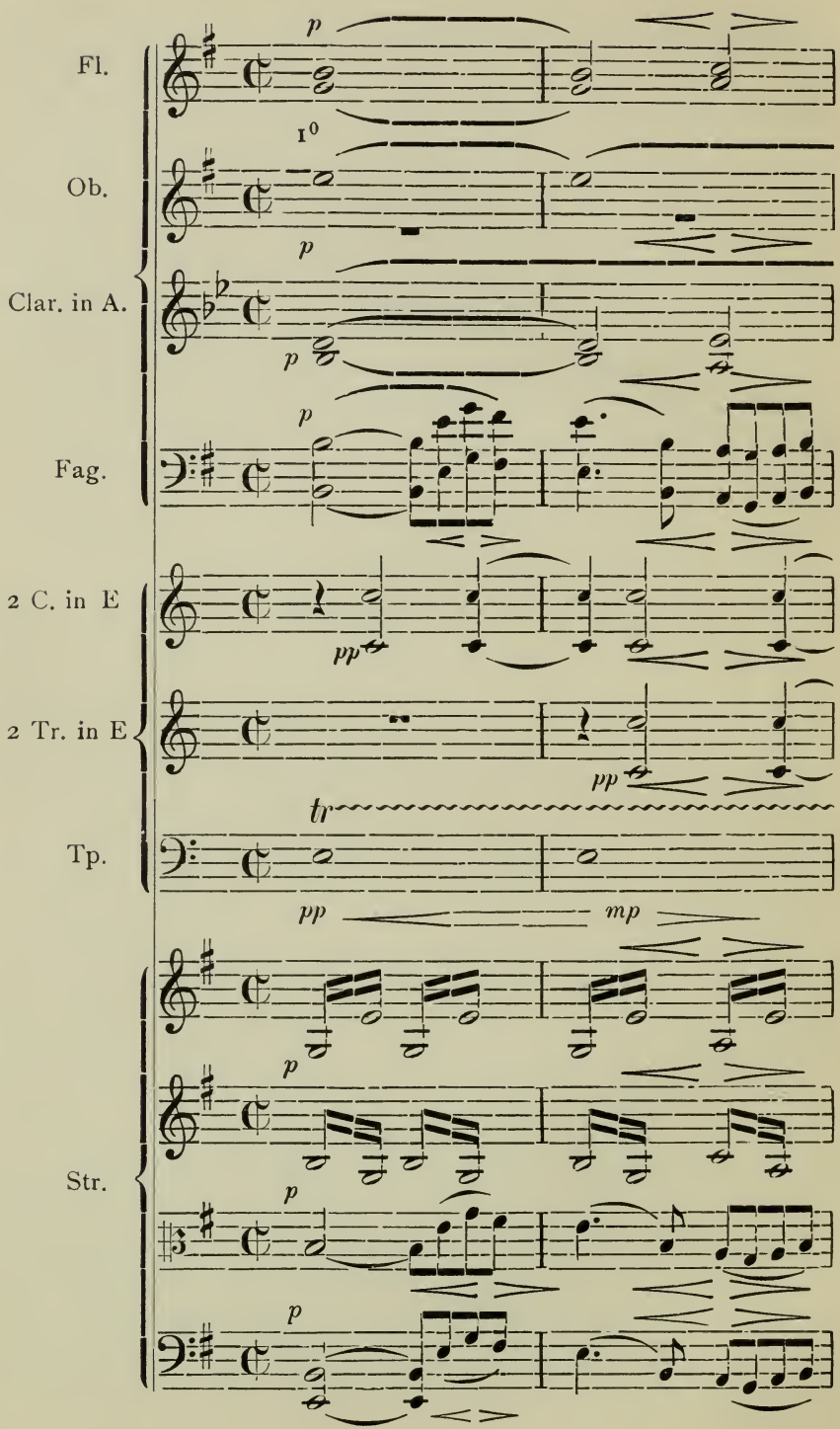
Here the tone-painting tendency, of course, quite recedes into the background from bar 9 to 12, to give way to the required support for the voice in bringing out the stronger subjective feeling. The *crescendo* and *forte* are, therefore, no longer objectively referred by the listener to the rippling brook, but, in a purely subjective manner, to the more excited mood expressed in the words. The little example, therefore, confronts us at once with one of the most difficult problems besetting a music which is mainly intended to awaken definite mental images, whether it illustrates a text to be sung, or, without words, interprets a poetical theme. The boundary line where the "representation" ceases and the direct expression of feeling begins is so little capable of being sharply marked that the composer often runs the risk of being misunderstood. Even the true creative genius, who does not concern himself with a timid calculation of the effect, but produces spontaneously from an inner necessity, will not always escape this risk, except he succeeds in leading the listener along the path of his own feeling with such irresistible force that the latter too must reproduce absolutely without any reflection.

The composer mixes up, in such cases, two altogether contrary functions of his imagination, which, indeed, cannot always be kept strictly separate, namely the receptive and the productive proper. Now he remains looking on, enjoying, and merely reflects the impressions from without, now he goes out of himself and reveals what goes on in his own interior. As a rule, of course, there is in every work of art a definite relation between the outer and the inner world, even though it be that of strong contrast, which, indeed, runs the least risk of being misunderstood. What is really heterogeneous, disparate, will not be mixed up by the poet, or if he should do so, the musician will have no inclination to clothe his ideas with music. But it is just where what is seen, the incitement from outside, and what is felt interiorly harmonize most perfectly, that the boundary lines of both possibilities of musical formation are most blurred, and we are confronted with the danger of still taking for illustration, for external description, what is intended for expression of individual feeling, and the reverse. In the above example the interpretation of the *crescendo* and *forte* in the sense of the tone painting

undoubtedly intended in the beginning, would evidently make the impression of a sudden strong increase in the intensity of the imitated noises, that is of a more violent rustling of the wind in the leaves, or of a louder rushing of the water, on account of a greater fall, or some such cause. As long as the unity of the picture is preserved, and the mood of the picture in nature harmonises with that of the soul, a strict separation of the two elements, the perceptive and the expressive, is not, of course, required, and without any serious disturbance of the total course something of the emotions may be transferred to the depicting of nature, or, conversely, the depicting of nature may be understood as the expression of the soul's life. What composer, however, would take it into his head to mix up a violent scene in nature, say a storm, and a serene mood of the soul? It is impossible to represent both simultaneously; and to connect them alternately would scarcely be possible without a calm taking place in nature and, conversely, the soul's mood becoming excited. Such experiences explain the general unwillingness of the aesthetic judgment to accept formations that are too varied, such as result when the composer of a song is misled into tone-painting wherever a word offers a concrete picture to the imagination. Even the many miniature pictures in Haydn's Creation, although carried out in a masterly fashion, and although never doubtful as to their illustrative meaning, merely appear as a very pretty mosaic, as a kind of harmless, childish play, which makes us smile unconsciously. The means which Haydn uses for his illustrative purposes, are, by the way, the simplest possible, comparable to pencil sketches; tone colour has but little to do with them. High and low positions, rhythmical figures, and generally means of design are used in the main, while the colouring is only a secondary result.

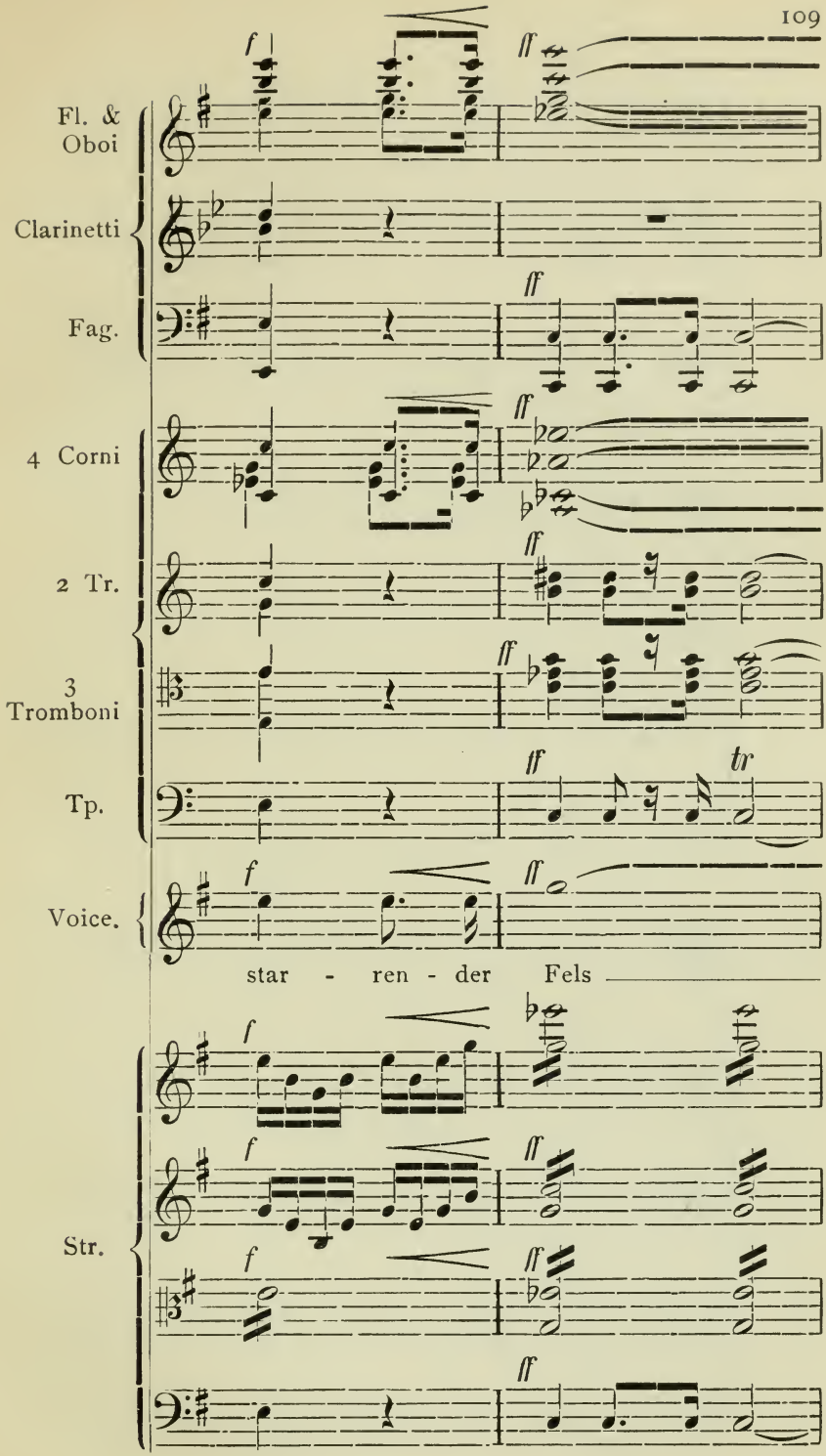
While the opening of the Schubert song orchestrated above requires a bright colouring, a dark colouring is required for the opening of Schubert's "Aufenthalt." The bitter, distressful mood and the generally grand expression of the song make it desirable to have trombones and trumpets at our disposal, especially for the further development, in order to make the strongest accents possible. But this purpose will make it advisable to

bring in the sound of the brass, with a certain caution, from the beginning. The dark colouring is already given by the actual pitch of Schubert's notation, and it will be well, therefore, to preserve this. We may intensify the darkness by sustained notes of the clarinets in their lowest octave, which, with impunity, may be doubled in the higher octave by the flute. The bass melody of the introduction will naturally be played not only by the basses and celli, but also, in a third octave, by the viole, and will with advantage be re-enforced by the bassoons. To preserve the shakes of the accompaniment is not necessary; semiquaver tremolos of the violins will paint the roaring torrent and the strident forest just as well. The beginning, then, may be worked out thus:


Fl.
Ob.
Clar. in A.
Fag.
2 C. in E
2 Tr. in E
Tp.
Str.
p
pp
mp
tr

dim.
dim.
dim.
dim.
pp
dim.
dim.

The trombones ought to be used, with the greatest caution of course, even in the first stanza. The best way will be to make them join in the bass motives intercalated between the melody phrases. Especially the „starrende Fels“ (“hard-faced rock”) will bear these hard sounds as characterisation very well. In the second and fourth stanzas the brass instruments will have their full effect at the accents „fließen die **Tränen** mir ewig erneut“ (“tear upon tear flows for ever anew”) and „ewig derselbe bleibet mein Schmerz“ (“ever unchanging lasteth my pain“). But the climax is formed, of course, by the harmonic succession of surpassing boldness, consisting in a third-step between minor chords (^0b—^0g) at the „starrender Fels“ of the concluding stanza. The long drawn *C* minor chord requires the full *tutti* of the available instrumental body, and also sudden dynamic increase, so that the rare harmonic boldness will stand out powerfully like a real gigantic rock. This effect will be intensified by the sudden re-entry of diatonic harmony and a strong dynamic decline (silencing of all instruments that can any way be done without).


Fl. & Oboi
Clarinetti
Fag.
4 Corni
2 Tr.
3 Tromboni
Tp.
Voice.
star - ren - der Fels
Str.

p
f dim.
p
p
1⁰ & 2⁰
p
dim. molto.
tr
p più dim.
mf
rau - schen - der Strom
p
p
p
dim.
p

These short samples of characteristic use of instruments for a definitely intended object must suffice to show the aspiring composer the way he is to go. If he acquires the habit of listening attentively, every performance not only of opera or of Church music with orchestra, but of any choral work with orchestra will reveal to him the constant endeavour of the composer to use the instruments characteristically for a double purpose, namely, first, to illustrate continuously, as far as can be done without getting fragmentary, the meaning if not of every word, at least of every line or stanza, and secondly, to express clearly the varying moods of the soul. I have already pointed out the parallelism between the forms of expression of feeling and those of tone-painting that imitates something audible or visual. To study this parallelism in detail and to follow out its practical application by the composers, must naturally be the principal task of him who will get full command of the art of instrumentation. To give here further examples in addition to those given in the Catechism of Musical Instruments, would be of little value. It will be more useful to add a few general remarks as a guide through the vast possibilities. Besides, the analyses of orchestral works given in so many concert programmes will be of great service.

Musical Aesthetics show that the human voice furnishes the basis of appreciation of all instrumental sounds. This can be observed with regard to different effects of pitch as well as the possible gradations of strength of tone, and also with regard to tone colours. Whatever happens outside the compass of the human voice, be it above the upper limit of the soprano or below the lower limit of the bass, cannot naturally be perceived as expression of subjective feeling, cannot be subjectivated fully, and, therefore, serves preeminently for the purposes of tone painting. That is the reason why in the compositions of the school that aims at characterisation and tone painting, we meet so frequently with a striking exploitation of very high and very low regions of pitch. Naturally the high positions are used for the representation of the high, bright, celestial; the low positions, for that of the low, dark, infernal. The holy Grail floating down from the height of heaven to the earth is depicted, in Wagner's Lohengrin Prelude, by harmonies on four violins

in the three- and four-times accented octaves. On the other hand, the *Contra E* flat at the beginning of the Rheingold Prelude places us in the bottom of the Rhine. Beethoven paints the starry sky in the Ninth Symphony („Brüder überm Sternenzelt") by wood wind chords in highest position. Choirs of angels are sung by high children's voices, but low bass voices are always used by preference for the representatives of the evil principle.

Not only do tones which are high or low absolutely, that is in opposition to the normal range of the human voice, produce this characteristic effect, but even the lowest tones of high instruments, such as flute or clarinet, make the impression of the low, dark, sombre, and thus appear as uncanny, awful. Here the aesthetic effect of the quality of tone, on which we shall have to say more presently, partakes in the impression.

High tones are, as a rule, on account of the smallness of their sound waves, more agile; low ones, more clumsy and heavy. This again makes the high regions the theatre of airy, light beings, and renders the lowest tones so suitable for the representation of monsters living in the depths of the sea (the leviathan in Haydn's Creation) or in the bowels of the earth (the dragon in Siegfried). But, indeed, any continued movement in very short values is so foreign to the nature of the singing voice that even in medium position it resists full subjectivation, and consequently awakens in the imagination ideas of something going on outside of us. This can be utilized for the purposes of tone painting in the most varied manner according as a text to be illustrated, or a programme proposed, leads the imagination in a certain direction (whizzing insects, busy fairies, playing elfins etc.). These ideas are helped by strikingly weak power of tone *(pianissimo)*, but can be produced without that by vivid movements of all kinds.

The special forms of movement varying with regard to direction, or with regard to combination of long and short tones, again give rise to manifold associations of a definite kind. Continued movement by single steps in notes of the same duration and in the same direction, will always be understood, in the first instance, as an advance upwards or a receding downwards, irrespective of whether the movement is slow or quick. The impression of brightening

associates itself easily, once the imagination is turned in that direction, with gradually increasing pitch, while, on the other hand, the setting of the sun, the coming of darkness are represented by a gradual lowering of pitch. But usually these means are accompanied by growing or declining strength of tone, and also by increasing or decreasing agility. The day is also the time of busy and noisy work, the night, the time of stillness.

On the other hand, it is possible to use the greater number of these means of musical effect without any tendency towards tone-painting, as direct expression of movement of the soul. Indeed, they are as such most natural and legitimate. High spirits, then, coincide with increased pitch, strength, and agility; low spirits, with falling pitch, decreasing strength, flagging movement. Intermittent movement can be the expression of fear (faltering pulse), and thus similarly with innumerable combinations of the factors. I mentioned already that extremely weak degrees of dynamics take away, as it were, from the expression its reality, and this can awaken the idea of dreamy, unreal happenings. On the other hand the enormous power of the *fortissimo* of the loudest instruments (trombones, trumpets, drums) can be subjectivated, that is, perceived as direct expression of feeling, only with the most careful preparation. Only too easily the idea of something grand facing us from outside suggests itself.

We see, then, that quite apart from the special effects of tone colour, there are plenty of means of drawing music away from its first and highest task, which is to utter what moves the soul. We cannot, therefore, be surprised that striking effects of colour should further work in this direction. In order to explain the associative effects of tone colour we must remember again that all quantitative and qualitative musical judgments start from the normal significance of the human singing voice. The repellant, unsympathetic effect of bleating, screeching, bellowing, or cheeping tones, the fact that they cannot be subjectivated, is primarily due to the circumstance that they appear not as human, but as animal voices. But for the same reasons the tones that are opposed to the principle of the Classics, and which, therefore, were either avoided altogether, or admitted only when sufficiently covered by others more normal, that is more homogeneous to the

singing voice—are particularly suited for the purposes of tone painting and characterisation. For the purpose of imitating sounds of nature, such as the moaning of a tree in a storm, the creaking of a weather-cock, the screeching of birds, the barking of dogs, the noise of a battle field, the groaning of the wounded, etc., many tones may be used without any scruple and with the best effect, which would have to be rejected strictly as plain expression of feeling. Artificial deteriorations of the tone colour, such as are produced by mutes on string or brass instruments, are, therefore, much resorted to in the modern art of instrumentation. We must admit, however, for the mutes of the strings at least, that they veil the tone in a peculiar manner capable of producing quite poetic effects. Robust health, indeed, does not belong to the muted tone of the strings; they show as it were a delicate, attractive pallor. Something similar might be said about muted horn tones, but not about the miserable, whining sounds of muted trumpets. Muted horn tones sound oppressed, subdued, and are in their place, therefore, where a text or programme makes them legitimate as representations of fear. An apposite criticism of the value of muted trumpet sounds has been given by Brahms by his use of them in his „Akademische Festouvertüre." The romantic ideal of instrumentation is, as already said, the use of such tones that differ from the normal, healthy tone by heterogeneous admixtures (hoarse, rude, grotesque, scurrilous) for the purpose of objectivating representation. The putting forward, too, of single instruments in protracted soli arises from similar motives. The bright clear tone of the flute in its upper range, the voluptuous, love-warm sound of the clarinet in middle position, the virginal coyness, childish simplicity of the oboe, the bassoons reminding us somewhat of the comical old man, the world-embracing, yearning tone of the horn in middle position, the jubilant clang of the trumpet, the sacred solemnity of the trombones—all these are individual types clearly discernible and may, therefore, stand out significantly when individualisation and representation are aimed at. The symphonic style, however, can admit this prominence of the individual only with great restriction and for a very short time, and will probably keep to the ideal of the Classics even in the future.

In conclusion we will add a word about the *pizzicato* of the stringed instruments. This device makes them for the time being the representatives of a different class altogether, namely of the instruments with plucked strings. But as the resonating apparatus of the strings is not calculated to favour a continued sound of the tone, the *pizzicato* on them is, in contradistinction to the sound of harp, guitar, zither, etc., always dry and short, and merely represents a kind of intensified *staccato*. But as such it has its own value, in *pianissimo* as well as in *fortissimo*, and can easily be embodied in the artistic conception as an essential element.

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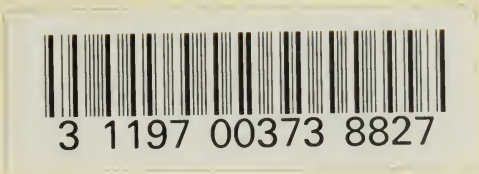
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